DOCUMENT RESUME

ED 352 000 IR 015 828

AUTHOR	Beaudoin, Michael F.; And Others
TITLE	Distance Education Symposium: Selected Papers, Part 1. Papers Presented at the American Symposium on Research in Distance Education (2nd, University Park, Pennsylvania, May 1991). ACSDE Research Monograph Number 4.
INSTITUTION	Pennsylvania State Univ., University Park. American Center for the Study of Distance Education.
REPORT NO	ISBN-1-877780-06-5
PUB DATE	May 91
NOTE	79p.
AVAILABLE FROM	American Center for the Study of Distance Education, Penn State University, 403 S. Allen St., Suite 206, University Park, PA 16802-5202 ($20).
PUB TYPE	Information Analyses (070) -- Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Change Strategies; Communication (Thought Transfer); *Distance Education; Educational Change; *Educational Research; Instructional Design; Learner Controlled Instruction; Nontraditional Education; Opinions; Services; Student Characteristics
IDENTIFIERS	Learner Characteristics

ABSTRACT

The purpose of a symposium on research in distance education was to continue the process of building the network of scholars and climate of cooperation and communication necessary for further development of distance education, and to provide an opportunity for discussion. Four main areas of focus for the symposium are identified in a brief preface by Michael G. Moore: Learning and Characteristics of Learners; Course Design and Communication; Instruction and Learner Support; and Theory, Policy, and Management. There are five papers in this collection: (1) "Researching Practice and Practicing Research: Critique of Distance Education Research and Writing" (Michael F. Beaudoin); (2) "Education for Each: Learner Driven Distance Education" (Connie Dillon and Dana Blanchard); (3) "Changing Perceptions of Learners and Learning at a Distance: A Review of Selected Recent Research" (Chere Campbell Gibson); (4) "Responding to Change: Designing a Flexible Learning Organization for Distance Education" (Andrew Woudstra and Stephen Murgatroyd); and (5) "Research on Selected Aspects of Learner Support in Distance Education Programming: A Review" (Stephen J. Wright). Each paper contains an extensive bibliography. (ALF)

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DISTANCE EDUCATION SYMPOSIUM: SELECTED PAPERS

PART 1

Papers Presented at
The Second American Symposium
on Research in Distance Education

The Pennsylvania State University
May, 1991

Michael F. Beaudoin
Connie Dillon and Dana Blanchard
Chère Campbell Gibson
Andrew Woudstra and Stephen Murgatroyd
Stephen J. Wright

Number 4 in the series

Research Monographs

American Center for the
Study of Distance Education
College of Education
The Pennsylvania State University

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Printed in the United States of America

The American Center for the Study of Distance Education
College of Education
The Pennsylvania State University
403 South Allen Street, Suite 206
University Park, PA 16801-5202

ISBN 1-877780-06-5

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Preface

In Spring 1991, The American Center for the Study of Distance Education, a graduate teaching and research group at Penn State University with a network of associates around the country, extended invitations to approximately fifty researchers and scholars in distance education to participate in The Second American Symposium on Research in Distance Education. Hosted by Dr. Michael Moore, Director of The Center, and funded by the Annenberg/CPB Project, the Symposium brought together a select group of educational researchers to share their knowledge of the present and projected condition of the distance education field, with particular reference to developments since the First Symposium of July 1988.

The purpose of the Second Symposium was to continue the process of building the network of scholars and the climate of cooperation and communication necessary for the further development of distance education by providing an opportunity for discussion among some of those who had been present in 1988, augmented by an equal number of persons who had identified an interest in distance education research since then. Because the First Symposium had resulted in an important set of papers subsequently published in the Pergamon book *Contemporary Issues in American Distance Education*, each person invited to the Second Symposium was asked to prepare a paper, the hope being that these papers would form a series of publications as well as provide a vital resource for discussion in the Symposium.

The authors were asked to "review recent developments in research and study of distance education, to conduct further analysis of research needs, and to plan future research and scholarly work." In order to refine and carry out this broad agenda, four areas of focus were identified: 1) Learning and Characteristics of Learners; 2) Course Design and Communication; 3) Instruction and Learner Support; and 4) Theory, Policy, and Management. The following papers comprise the first in a series of monographs devoted to the research issues considered at the Second Symposium.

Michael G. Moore

Researching Practice and Practicing Research: Critique of Distance Education Research and Writing

Michael F. Beaudoin

At this juncture in the development and documentation of distance education as an emerging worldwide phenomenon, new contributions to the corpus of research-oriented literature are critical. While intended to provide validated data for additions to the literature in the field, research has important other benefits: it can be useful in setting agendas and focusing issues for practitioners; in generating action strategies through informed discussions; and in providing bases for greater common understanding among individuals and organizations engaged in distance education activities.

Finally, after a long legacy of distance education practice, we are just now beginning to formulate a coherent definition that distinguishes it as a distinct field of educational practice; to recognize that it is a necessary component of state and national educational delivery systems; that it is a normal means of providing access to education for working adults; and that it is a legitimate field of academic inquiry. Despite noticeable gaps, the literature on distance education grows at an encouraging pace. The new Jossey-Bass book, *Distance Education: The Foundations of Effective Practice* (Verduin and Clark 1991, 241-267), lists twenty-six pages of reference works, most on some aspect of distance education. Still, our imagination in researching and evaluating distance education practice has not kept pace with our innovation in applying distance education principles.

At present, research data remains embarrassingly thin in some areas where there is an especially strong need for convincing evidence to document and demonstrate practice outcomes. For example, in identifying the most essential skill sets for effective distance instruction, we continue to rely largely on anecdotal data based primarily on personal experience, expert opinion, and conventional wisdom rather than on any systematic evaluative data. In documenting the effectiveness of various distance education technologies, little empirical evidence is presented to support claims. Comparative studies on the effectiveness of distance education vs. classroom-based instruction seldom cite criteria used to measure results. A particularly thorough review of distance education literature on the topic of learner achievement at the K-12 level yielded 503 documents, yet

only fourteen (14) of these were research-based studies, and even these provided little empirical evidence to support their conclusions (Moore and Thompson 1990, 7).

A review of distance education research conducted by Cookson in 1989 confirmed that descriptive and prescriptive articles far outnumber reports of systematic inquiry. Those reports that can be categorized as empirical research studies largely address two topics: the effects of specific distance education methods and student outcomes as a measure of program effectiveness. The most often studied distance education outcome is attrition in an attempt to identify factors related to student performance. These studies are pragmatic in orientation and seldom utilize previously developed concepts of adult learning theory. Yet to be examined in any detail is the nature of the adult learning process in the distance education context (Cookson 1989, 22–34).

A computerized national search of all books catalogued under "distance education" (On-Line Computer Library Center, Inc.) published since 1989 yielded fourteen titles that could be categorized as substantive, research-based works. Of these, three were published in 1989, three in 1990, and eight published in 1991. Eight of the fourteen publications presented research data on a single program. The remaining six volumes appear to have examined instructional and distance learner issues from a more "generic" perspective. From this admittedly informal survey we can arrive at two tentative and arguable conclusions: 1) that research-based, book-length works on distance education topics appear to be growing in number (judging from the almost 300% increase in titles in 1991 over each of the two previous years); and 2) that a good deal of the research being added to the literature on distance education continues to be confined to findings based on individual programs rather than more comprehensive research studies.

Despite the introduction of several research-oriented journals on distance education which have resulted in much useful and well-regarded writing in the field, a good deal of content still focuses on case studies of individual programs that rely on anecdotal information and observation rather than empirical data. For example, a randomly selected recent issue of *The American Journal of Distance Education*, a refereed publication devoted to research and practice, contained five articles of which only two were research based; the others focused attention on practices utilized in a particular program (Moore 1990).

Most so-called research in distance education is still evaluative or comparative and is often not useful or interesting to others than those connected with the program under review. We are studying distance education to influence decisions regarding practice, policy, strategy; yet, most data has limited external validity, does not formulate hypotheses, and does not offer results that can be reliably generalized to other situations. The practitioners complain that distance education research language is too abstract and without

practical value, but scholars argue that practical concerns do not readily lead to important research questions.

Coldeway offers an important distinction between evaluative case studies of individual programs and theory-based research—that the latter is more generalizable to other programs and practices. He also notes that we are seeing and reading a lot about distance education, but we still do not know much about its quality because we focus on media, on completion rates, on which technology works best, and on how distance education compares with traditional modes of instruction. But we still do not really know much about learners in distance education contexts, or how they learn and how best to teach them. (Coldeway 1990, 387 ff.)

Research attention to the international context of distance education is particularly lacking. For example, the International Centre for Distance Education undertook a survey of all institutions involved in distance learning, and published its report, *The State of Distance Learning Worldwide* (Perry 1984); to date, there has been no further research effort by the Centre or by any other individual or organization to update this index. That so few individuals involved in distance education in the U.S. are aware of the long legacy of distance education in several foreign countries suggests that there has been an inadequate dissemination of literature reporting on research and practice outside the United States.

To be sure, the studies conducted by the British Open University documenting its practices throughout the 1970s and 1980s have contributed significantly to the body of distance education literature, and indeed served as a catalyst to draw increased attention to a mode of study which, while it had a long legacy in many other countries for decades, remained relatively obscure until the British Open University began documenting its work and raising important questions about its impact on individual learners as well as the society at large.

The paucity of research-supported writing on key distance education topics contributes to lingering skepticism, prevalent myths, and continuing doubts about the credibility of out-of-classroom instruction. In a recent discussion with an academic colleague, reference was made to an institution that offers graduate degrees in education through directed independent study. When my associate brought up the dreaded "M-O-D" phrase (i.e., mail order degree), I pointed out that there are now well over one hundred accredited post-secondary programs in the U.S. offering degrees through external study. He responded by pointing out how little literature there seemed to be on the subject, even in the popular professional press, that might make conventional educators a bit more open minded about distance education practices (Since 1982, I have noted less than a dozen articles related to distance education in *The Chronicle of Higher Education*).

A good deal of popular writing on distance education learning is still preoccupied with defending out-of-classroom instructional methods as noble and efficacious, but most authors seem to leave it to others to provide the data to support their contentions. Ten years ago the excuse was that there was not yet enough data available; unfortunately, we still do not have at our disposal sufficient evaluation research to document our work. Advancing distance education demands adaptive policies to meet changing circumstances and new needs; this requires persuasive evidence derived from ongoing research, but we must be willing to document, analyze and understand our failures as much as our successes.

Most distance education literature today follows the pattern of adult education literature in vogue twenty-five years ago (i.e., case studies with little, if any, empirical data). As distance education programs became more prevalent into the 1980s, much of the early research literature was in the form of evaluation studies designed to present data that could be used to fend off skeptics and critics of this growing phenomenon. As was the case with adult educators, planners and administrators attempting to introduce innovation into traditional settings during the "let a thousand flowers bloom" era in higher education during the 1960s and 70s, distance educators in the 1980s were so preoccupied with establishing effective programs and practices, that relatively little attention has been devoted to research. While more insightful writing and analysis supported by data is now common in adult education (e.g., Brookfield 1988), few distance education authors have moved in this direction.

At the 1991 Research Symposium on Distance Education, current literature in the field was characterized as: descriptive, *ad hoc*, non-generalizable, evaluative, non-theoretical, applied, historical, quantitative and methodologically poor. Perhaps we have not yet adequately discerned what is really important to learn through research, or what theories can be derived from practice. In our zealousness to examine methodological matters, we have largely ignored ideological issues in distance education. We focus on instructional delivery systems, but we eschew contextual considerations, particularly if there are paradoxical or political considerations to address. And we certainly have not integrated much that can be learned from the rich research and writing in the adult education arena. Consequently, we have accumulated much data related to practice, but we have little to guide us in formulating policy. Although ERIC contains 1400 documents relating to distance education, we have yet to create commonly accepted language and definitions governing distance education; we have yet to establish a national agenda or statewide models for distance education; and we have yet to identify the organizing principles and concepts that unify distance education. Hopefully, we are not too far away from agreeing

upon and articulating acceptable principles of good practice in distance education that are derived from reliable research in the profession.

Conference presentations and proceedings also reveal conspicuous lacunae. We have observed the proliferation of state, regional, national, and international conferences on distance education with participants representing an amazing array of programs engaged in all manner of education at a distance. Yet, unless it is an event specifically designed to review and report on recent research results, presentations typically are of the "show and tell" variety. For example, the 1988 and 1989 proceedings *Innovations in Distance Learning* of the Northeast Distance Education Conference (Le Baron 1991) included thirty-four papers; only fourteen percent of these included research references and forty-five percent of the papers were limited to an overview of a single program. This event was widely attended by distance educators and administrators from the entire northeastern region of the country, yet the overall quality of papers left much to be desired in making a respectable contribution to research literature in the field.

It is not only the lack of adequate attention to solid research in the field that is troubling; there are also very basic issues regarding the soundness of research methods utilized to assess distance learning outcomes. White (1991) has made some particularly insightful observations about the state of evaluation research in distance education, especially with regard to the effectiveness of instruction on student learning. She notes that we do not yet know if technology-assisted instruction aids student learning because it has not yet been tried at sufficiently high enough levels and frequency to test its impact; because the curricula in use today is inappropriate to the skills students need for the future; and because our evaluation research methods are archaic. For example, we teach via imagery then attempt to measure learning outcomes with pencil tests. White argues that because distance education is primarily a visual teaching medium, visual evaluation is most appropriate. In short, she advised that we use the same medium to test as is used to teach. This deceptively simple yet fundamental rule should apply to all our evaluation efforts in distance education—match research methodologies to instructional modalities (White 1991, 285).

Evaluation research needs to address new areas of inquiry and move beyond the standard questions regarding student attrition and which technology works best. Following is a suggested research agenda around instruction-related issues (developed at the 1991 The Second American Symposium on Research in Distance Education):

- How do we best evaluate quality of materials?
- Are certain media more suitable to the learning styles of certain students?
- How do we best facilitate interaction in distance education settings?

- What incentives are most effective to facilitate interaction?
- What facilitates or impedes effective learning regardless of the medium?
- How do we integrate the teacher's dual role of instructing and processing?
- What should we ask distance learners about what is helpful for them?
- What can we learn from the earlier low-technology/external degree/distance education programs?
- What are the critical teacher support systems needed to enhance distance instruction?
- What conditions are essential for creating a supportive learning environment?
- How do we attract non-distant learners and classroom-bound teachers to utilize distance education options?
- What "Principles of Good Practice" for distance educators can we derive from current research?

Despite significant additions to the corpus of literature on distance education during the past decade, there are numerous other critical questions regarding this mode of learning which have yet to be adequately researched. At this stage in the distance education research agenda, questions about which technology works best is not a priority research issue. We need systematic and collaborative research relevant to the future of distance education, and we need to ask new and fundamental questions relating to pedogogy: Can independent learners fully develop the skills necessary for learning without face-to-face interaction with the teacher? If direct experience, augmented by lectures, discussions, and peer interaction is important for learning, can the independent study environment provide the necessary conditions for the learning process to thrive? Does learning at a distance allow for reflective learning which some learners utilize for optimum cognitive development? If face-to-face classroom encounters are increasingly replaced by tutors and students performing their respective roles at a distance, if instructors are steadily replaced by machines, and if learners work in isolation from one another, will the affective skills largely developed through human interaction be lost? What impact will the changing role of teaching at a distance have on the image and status of teachers accustomed to a visible and dominant presence in the classroom?

How can we more reliably assess resources and determine needs in order to effectively implement the most appropriate distance learning approaches in developing countries? Further, once established, do distance education programs have any significant impact in ameliorating social problems and stimulating change in emerging nations? Can such efforts contribute to both individual advancement and social goals? In countries where major

distance learning systems have been implemented and have been in operation for some time, have such efforts contributed to greater self-sufficiency and movement away from the oppressive social control that permeates many societies? Or, when linked with pervasive mass media, have such systems become powerful tools to teach people what to think rather than assist them in developing democratic skills? If a primary rationale for distance learning is to increase access to educational opportunity for greater numbers without time and place constraints, yet at the same time requiring the purchase of home-based learning aids well above the typical cost of books and other printed materials, then will technologically assisted learning be limited to the more affluent learners of a society?

It is important to recognize and acknowledge that research in distance education, as in other areas of inquiry, has an action-oriented dimension to it. Through research, we can isolate lacunae and be guided toward new and provocative questions which can ultimately enhance our practice. Even more immediate applications of research findings are possible when we reflect on our current practice, intervening and altering our approaches as appropriate with the benefit of the data at hand. In this way, we are able to research our practice and concurrently practice our research.

This paradigm is convincingly explicated by Donald Schön in his work, *The Reflective Practitioner* (1983). Schön advocates that practitioners in the various service professions "reflect in action" as a dynamic means of enhancing their practice. A practitioner who engages in reflective practice can question the definition of his/her task, the training and the theories he/she brings to it, and the measures and outcomes of performance. In this process, the practitioner reflects on the elements of knowledge and skill he/she brings to bear on practice, and thus may arrive at new insights regarding the assumptions, techniques, values, and purposes imbedded in his/her initial presumptions and ongoing training to function effectively in a particular profession.

Reflection-in-action is an essential process by which professionals can assess the efficacy of their practice and initiate appropriate interventions and adjustments designed to enhance their roles. It can lead to new concepts of how to better integrate research and practice and how to impact upon the learning systems of professional institutions. It is also a means by which the practitioner can identify areas in which continuing professional training and further research is required. Both researchers and practitioners of distance education can make significant new contributions to the field by synthesizing action and reflection.

Although distance learning programs now exist in diverse forms within and beyond the United States, their proliferation still has not led to the establishment of any fully recognized and reliable source of expertise that institutional planners and decision makers

may rely upon for guidance. Distance education, as a distinct profession, will remain undefined and undervalued until there exists more widely accepted principles of good practice for distance educators. A more comprehensive theory of distance education must be articulated through additional research and evaluation that is derived from practice if we are to increase the awareness of others to the philosophy, methods, and efficacy of learning at a distance.

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Education for Each:
Learner Driven Distance Education

Connie Dillon and Dana Blanchard

Introduction

At a recent conference on distance education, participants were asked to make a true or false response to the following statement: "All students will succeed in a distance education class" (Wagner and Beaulier 1991). The overwhelming response was "false." However, when the statement was modified to read: "Given adequate learner support, all students will succeed in a distance education class," the audience response was mixed and thoughtful.

Educational technologists have long acclaimed the role of instructional systems design (ISD) in the culmination of a successful learning experience. Surely the power of twentieth century technologies coupled with the application of systems theory would move us from a mass education paradigm characterized by "education for all" to a new individualized paradigm characterized by "education for each" (Cross 1976, 50).

However, as we approach the twenty-first century with expanded use of sophisticated telecommunications technologies in educational systems, we still operate from a nineteenth century, "education for all" paradigm. The focus of technology in distance education remains largely upon one-way technology:

> Distance education has seen a preoccupation with mass media such as broadcast television. Television and video are very useful forms of packaging information. The important issue is that the video signal is usually broadcast or delivered in one direction. (Garrison 1990, 16)

Individualizing the educational experience using instructional systems design models is an expensive and still experimental endeavor. We have yet to translate what we know about learner differences into prescriptive designs for cost effective technology-based delivery. Still the promise of individualizing the system through the application of ISD models alone leaves the risk of an educational experience in which locus of control remains with the content rather than shifting to the learner.

An equally important, but highly neglected piece of the "education for each" paradigm is the role of learner support in individualizing the system. As Moore (1987) states

> Put quite simply, since our research confirms what common sense suggests, that adult learners vary greatly in their motives, in the strength of their motives, in the way

> they learn and the problems both academic and personal which influence their learning...the question is: should every distance education system make provisions for...some other kind of personal support for each individual learner in an otherwise mass education system? (p. 63)

ISD is certainly one side of the coin. However, the other side, learner support, may indeed be the critical consideration in a learner driven educational system.

This paper explores the issue of learner support: first, through an investigation of the phenomena of learner support through an analysis of the findings from a review of the literature; and second, by exploring a framework for the analysis of distance education through an examination of the interrelationship between learner support and two-way communications. This framework is based upon an analysis of the level and type of interaction required from the perspective of the content to be learned, the needs of the learner, and the impact of the institution.

Methodology

The review of the literature utilized traditional content analysis techniques involving three phases: first, a literature search, second the identification of categories serving as the basis of analysis; third, coding the data, and, finally, data analysis (Gopal 1970).

Literature Search

The basis for the review of the literature was a search of documents in the Educational Resources Information Clearinghouse (ERIC) from 1981 through 1991 and a review of four distance education journals: *The American Journal of Distance Education* (1987-1990), *Journal of Distance Education* (1989-1990), *Distance Education* (1989-1990), and *Open Learning* (1990-1991).

Descriptors used for the ERIC search were "distance education" or "telecommunications," and "student support services" or "services." The ERIC search identified 102 usable citations in the area of learner support for the ten years selected. The majority of the ERIC citations came from the proceedings of six distance education related conferences.

Of the 107 articles published in the distance education journals cited above, twenty-one (20%) were devoted to some aspect of learner support including topics relating to study

centers, tutorial provision, residential schools, learner groups, feedback, and learner characteristics.

Emergence of Categories. Four levels of categories emerged, each serving as a point of analysis. The first level of categorization related to the method of analysis. The following six types of analyses predominated the literature: 1) descriptions, 2) essays, 3) data-based articles (subcategorized according to primarily qualitative or quantitative data), 4) theoretical, 5) reviews of the literature, and 6) methodologies. The second category of analysis related to institutional context which included type of institution, based on Keegan's (1990) typology, and level of technology according to Garrison's (1989) typology. The third level of analysis is based upon the type of learner support which served as the focus of the study. And the fourth level of analysis focused upon the characteristics of the learners participating within the institutions studied.

Table 1. Methods of Analysis

	ERIC	Journals	Total	(%)
Descriptions	45	3	48	(38)
Essay	20	2	22	(17)
Research Studies:				
Qualitative	6	3	9	(7)
Quantitative	18	10	28	(22)
Theory/Models	6	6	12	(9)
Reviews of Literature	5	1	6	(5)
Methodology	2	0	2	(2)
Total (%)	102 (80%)	25 (20%)	127	(100%)

Method of Analysis. As expected the journals provided a greater percentage of articles devoted to research-based and theoretical articles. In contrast, the ERIC search revealed a greater selection of descriptions. The frequencies and percentages for each category are listed in Table 1.

Detailed analysis of the research-based articles revealed that the majority of these studies utilized survey methodologies, and used descriptive statistics. Only five utilized quasi-experimental designs. The qualitative analyses included interviews, participant observations, document analysis, and case study methodologies. The scope of most of the studies was analysis of single systems or single institutions. Three studies were multi-institutional; two were international in scope; and two were comparative, comparing learner services in two systems across countries. Fewer than fifteen of the thirty-four research studies identified a theoretical basis for the analysis. The theoretical constructs identified

include theories relating to academic and social integration, small group processes, adult development, learner differences, andragogy, communications and interaction, guided didactic conversation, and Keegan's organizational typology.

Table 2. Analysis of the Institutional Context by Country and Type of System

Country	*Group 1/2	Group 2	Group 3	Group 5	Unknown	Total
Australia			1	1	2	4
Canada	2	1			1	4
Costa Rica	1					1
India	1					1
Israel	1					1
Netherlands		1				1
New Zealand	1					1
Scotland					1	1
Thailand		1				1
United Kingdom	1		1		2	4
United States			2	1		3
West Germany	1					1
Zambia				1		1
Total	8 (33%)	3 (13%)	4 (16%)	3 (13%)	6 (25%)	24 (100%)

*Grouped According to Keegan's Typology

Context. The institutions represent a variety of countries. The primary type of institutions studied are the autonomous distance teaching universities (Group 2), followed by distance education departments of conventional institutions (Groups 3 and 5) (Keegan, 1990). (See Table 2). The majority of institutions use correspondence and can be classified according to Garrison's (1989) typology as first generation technologies, relying primarily upon correspondence with other media often contributing only a supplemental role, if used at all.

Review of the Literature

The review of the literature summarizes the literature related to learner support and learner characteristics.

Learner Support. To ascertain some definition of learner support systems, the types of learner support discussed in each article were categorized into one of three distinct but related areas: 1) instructional support, which is characterized by support directly related to the learner's studies; 2) student support, which is characterized by activities associated with

traditional student personnel functions; and 3) communications support, which refers to the mediation of the communications process. This characterization is consistent with that provided by Garrison and Baynton (1987). The types of learner support services described in the literature are listed in Figure 1.

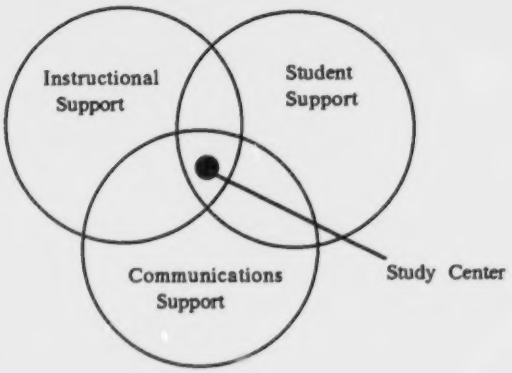

Figure 1. Three Interrelated Learner Support Systems.

Instructional and student support services are readily available to traditional students, but may present more difficulties for the distance students since these services tend to be campus bound. Library support is an excellent example of an important service which is "campus bound." Communication support is a unique need of the distance student, since the mediation of the communication process depends upon some mechanical or electrical transmission of content, such as the postal service and telecommunications-based communication. Telecommunications-based communication may include any combination of voice, data, and video delivery. This category also consists of services which are delivered to the student in a face-to-face mode, including traveling tutors, study centers, and residential schools.

Figure 1 illustrates the interrelationship among three categories of learner support systems since, ideally, these support systems will reinforce one another. For instance, study centers and residential schools often serve instruction, student, and communication support systems; goal clarification may serve academic advising purposes; and computer conferencing may be used for career guidance.

Instructional Support. Forms of instructional support are analyzed according to Moore's (1989a) three types of interactions: 1) interactions between student and teacher; 2) interactions among students and 3) interactions between student and content.

Interaction with Teacher. The majority of instructional support services discussed focus upon interactions with the teacher or tutor. These articles analyze the interactions which occur between the student and a teacher, tutor, or study center personnel. One issue relates to the responsibility for interaction. Holmberg (1985) and Dekkers, Kelly and Sharma (1988) provide evidence that most interaction is initiated by the student. Also Dekkers, Kelly and Sharma (1988) offer evidence that institutions may not accurately perceive the needs of students as institutions place more emphasis upon library services and advising and students place more emphasis upon tutorials and student support groups.

Holmberg (1985) distinguishes between institutions which support independence and institutions which expect independence. The former take more initiative for the interactions of students and teachers, whereas the latter place the responsibility upon the student. Based upon an international survey of distance teaching institutions, Holmberg suggests that institutions which support independence place more emphasis on enhancing the problem solving capacity of students, have greater course completion rates, and tend to exert more control over students. In contrast, institutions which expect independence exert less control, have lower completion rates, and emphasize the transmission of facts.

Accessibility and quality of tutorial support are a critical factor in both student success and positive attitudes (Powell, Conway and Ross 1990; Elton and Wort 1989). However, in a study of the Oklahoma telecourse program (Dillon and Ryan 1988), students rated student-teacher interaction and review sessions as less important than interaction with the learning materials (study guides and textbooks) and video components of the course.

Dillon and Gunawardena (1989) also compared the importance of and opportunities for interaction in a distance education system which uses teleconferencing technologies. Both on-campus and distance students feel interaction with the instructor during class is important. However, the distance students seemed more satisfied with the opportunities to interact with the instructor during class than the on-campus students. Out-of-class interactions with the teacher were less important for both groups of students than interactions during class. In contrast, Garrison (1990) found that a majority of students participating in a teleconferencing system feel contact with the instructor outside of class is important for purposes of clarification and problem solving.

Interaction with Students. In a study of student-student interaction, Amundsen and Bernard (1989) found that institutional support of peer contact for students participating in the Institute of Canadian Banks had no impact upon learners' self perception of learning and level of satisfaction. However they found a positive relationship between peer contact and final academic standing in a course for entry level students.

Dillon and Gunawardena (1989) found distance and traditional students enrolled simultaneously in the same class feel interactions with other students are not very important, whether during class or outside of class. Most of the students prefer to study alone rather than in groups or with a teacher present. Some distance students interact with work colleagues relative to course content (Dillon and Gunawardena 1989; Elton and Wort 1989). Heathcote (1990) describes support networks for health educators who had completed their studies, suggesting that such networks can continue to contribute to both continuing professional development and social support even after the formal education is completed.

Garrison (1990), Burnham, Taylor, and Mortensen (1990), and Haynes and Dillon (in press) provide evidence that students who participate in groups at distance sites use a form of peer tutoring. The groups provide an opportunity to exchange ideas and talk about course content during the teleconference. Siaciwena (1990) found that students perceive required residential schools to be important because they provide the opportunity to discuss problems and issues, afford a sense of belonging and encouragement, and offer advising services and library access.

Holt, Petzall and Viljoen (1990) examined the role of face-to-face study groups at Deakin University. Students believed the study group improved learning, increased motivation, and enhanced productivity. The group provided both social and maintenance functions, including bonding, feedback, problem-solving, and bench-marking. Enoch (1989) examined intensive and non-intensive tutoring study groups. The type of study group had no significant influence on course grade, but may have had some impact upon course outcome and continuation. Hinrichs (1987) provides a rationale for the development of study support centers in a study which found that forty-seven percent of the distance students surveyed did not plan their studies and only seven percent felt that studying positively impacted the way they structured available time.

Interaction with the Media. Interaction with media includes interaction with textbooks, other print materials, and audio visual materials. Research on library support is included due to the role libraries have in providing the distance learner with access to both print and nonprint media.

In a study by Marland et al. (1990) students interacting with text identified the substantive material and assessment activities (i.e., activities directly related to testing) as more stimulating than access structures or supplemental reading material. The substantive material cited was either single words or phrases which served primarily to clarify meaning. However, the generation of themes, theories, issues, or any type of cognitive

mapping was not stimulated by the text. The students largely ignored visual material and organizers. Much of the interaction with the text could be characterized as skimming.

According to an international survey by Holmberg (1985), most of the distance teaching institutions rely primarily upon print, and one-third offer distance students a choice between different media. Only a minority of study centers offer audio-visual and computer support. Audio-visual support at study centers is a low priority for both distance students and distance institutions (Dekkers, Kelly and Sharma 1988).

Regarding preference for delivery systems, Dillon and Ryan (1988) found that the majority of Oklahoma telecourse students rely upon broadcast television or cable television for viewing the televised content of the telecourses. Most of these students record the programming at home on video cassette recorders and view and review the material at a later date. Only a small percentage of the students utilized the campus study center for viewing televised materials.

A program was piloted to provide distance students with the opportunity to develop study groups using E-mail. The students perceived E-mail to be inefficient (when compared to the telephone) and impersonal; it was not used much due to a lack of integration into the course material (Enoch 1989).

Libraries. Burge, Snow and Howard (1989) provide evidence that distance students use local public libraries, although the library staff know very little about their programs of study. Little use is made of the variety of communications technologies, but librarians would like to exploit them if the issue of costs was solved. Library staff was also open to learning about how adult learners function. Academic librarians admitted little or no involvement in course design and expressed some feelings of isolation from distance education administrators. The instructor was primarily responsible for informing students about library services; however, instructors were not very proactive in informing students about available library services. Overall, distance students expressed inadequate knowledge, and very low, traditional expectations of library services. These results are confirmed in a study by Grimson (1985), who found very few constructive dynamic or integrated library-education contexts.

Dillon and Gunawardena (1989) and Elton and Wort (1989) found that library services are very important to the distance students. Dillon and Gunawardena found that a majority of distance students use local library facilities, such as a local college library or a local public library. The majority of campus visits are related to library services. Dillon, Hengst, and Zoller (1991) found that many instructors change course requirements due to unavailability of library materials for the distance students.

Student Support. Support services offered by distance teaching institutions and their perceived importance by distance students are highly variable. Kirkup and von Prummer (1990), in comparing FernUniversität and Open University study centers, found both the type and quality of services to be highly variable. Gous (1987) and van Schoor (1987) provide evidence that vocational guidance and academic advisement are more important to students than help with adjusting to distance education. In contrast, Dillon and Gunawardena (1989) found that the distance students perceive vocational guidance to be of little importance but library services and academic advisement to be very important. Fage (1987) found that distance education institutions have fewer resources for vocational guidance than traditional institutions. However Vickers (1991) provides evidence that the demand for vocational guidance is important for the students enrolled in distance education institutions. Studies by Dekkers, Kelly and Sharma (1988) and Dillon and Gunawardena (1989) indicate that distance students place little value upon support services relating to social sport and student activities.

Communication Support. It appears that the majority of communications between the learner and distance teaching organizations are correspondence (print) and telephone (Holmberg 1985). Some studies identified delays in receiving print materials as problematic (Dekkers, Kelly and Sharma 1988; Dillon and Gunawardena (1989). Fewer studies have been conducted on systems which depend upon teleconferencing. Studies of two similar teleconferencing systems indicate that audio communication is the most problematic; specifically the quality of voice communication to students at other sites. However, Garrison (1990) reported that the majority of students felt that sound quality was adequate, although sound difficulties included clipping, static, malfunctioning equipment, and sites being dropped off temporarily.

Learner Characteristics

The predominant learner population groups studied were non-traditional adult learners engaged in postsecondary education followed by adult learners engaged in continuing professional and higher education. Only two studies examined K-12 populations. The analysis examines the literature as it relates to learner support and success and learner support and special learner populations.

Learner Characteristics and Success. Bernard and Amundsen (1989) examined the relationship between persistence and social and academic integration in three courses. Variance in completers versus non-completers was reported based upon the type of course taken. Although academic integration was a factor of variance in all three courses, social

integration and goal commitment were factors in only one course. Institutional commitment and background characteristics were factors in two courses. They conclude that more research is needed to clarify the exact relationship that exists among courses with differing characteristics and to generalize these findings to other institutional types.

Powell, Conway and Ross (1990) studied the effects of predisposing characteristics on student success. The variables that made no contribution to success include current educational level, educational commitment, level of support, attitudes toward studying, number of children, and age. Primary variables contributing to success include persistence, marital status, need for success, and need for support. Other contributing factors include literacy score, financial stability, study habits, gender, and rating of previous educational preparation. They suggest that those who need support from others on difficult tasks and find it important to discuss coursework with other students tend to be less successful. They also suggest that effective study habits include having a place to study, generously estimating the time required for study, and taking a well organized approach to study.

In a study of the factors affecting completion for extension students, Coggins (1988) found that factors favorably influencing completion include educational level prior to enrollment, intention to earn a degree, length of time since last college credit course, and expectancy of performance. Conditions of learning and preferred learning modality appear to have no impact upon completion. Coggins recommends further research in the areas of motivation, expectancy, and locus of control.

Special Learner Groups. Distance education models provide new opportunities to reach special groups of learners, particularly those currently underserved and special needs learners. However, Brock (1990) points out that with regard to telecourse participants, Caucasian and middle-class students are "very much overrepresented compared to the general population" (p.175). Thus, this analysis of the literature also examined articles dealing with multicultural and special needs populations. Of the 127 citations and articles, fourteen (eleven percent) examined or discussed the unique needs of special populations of learners. These special learner populations included the following groups: disabled, older learners, minorities, high-risk, economically disadvantaged, women, rural learners, and prison populations. In only three citations were these populations the target of research studies: one targeting older learners; another targeting disabled learners; and the third targeting women.

Kelly (1989) found that the performance of older learners studying at the Open University compared favorably with other learners. Older learners have evolved a pattern of regular study, display a high level of commitment, value opportunities to contact tutors and other students, and are more anxious about studying and testing.

Vincent et al. (1988) found that technology could be used to overcome many of the problems encountered by disabled learners studying at a distance, but that new support systems were required related to the technology itself: distribution, installation, maintenance, and training. Van der Walt (1987) suggests that students with special needs may need more assistance with organizing a support network and that students with disabilities should not be automatically excluded from certain courses.

Kirkup and von Prummer (1990) compared the use of study centers on the basis of gender at two distance teaching institutions in Germany and the United Kingdom. Women tend to seek out more services than men. Also, women attend study centers more than men despite the fact that they face more barriers (particularly with relation to transportation and child care) than the male population.

Edge (1989) compared high-risk students and non-high-risk distance students and found that completion rates for high-risk students fell as students progressed through the program.

Summary of the Literature

The provision of support services, to include both the type of support provided and the quality of support is highly variable. The following analysis synthesizes the literature according to a framework which examines learner support from the perspectives of learner needs, content needs, institutional context, and technology.

Learner Support and Learner Needs. The requirements of effective learner support will vary depending upon the unique needs and characteristics of the learner. One important factor to success appears to be motivation or confidence of the learner. Less confident learners may need more group support than more confident learners. Less motivated students may benefit by more interaction with the teacher or tutor. Students with financial difficulties may need more access to financial aid support than those financially independent. Although students take responsibility for interactions in most systems, it appears that systems which encourage interaction show improved retention. The needs of special populations of learners need to be considered. Older learners may need more support in a testing environment. Disabled learners may need assistance in arranging a complex set of support systems. Minority students may benefit from networks of peer tutoring and students in prison may need special study facilities.

Factors which would be considered within the learner needs categories include psychological variables such as motivation, expectancy, learner preference, cognitive styles, goal accomplishment style, and personality type (Gibson 1990, Ehrman 1990 and

Atman 1990); experiential factors such as prior educational and work related experience; demographic considerations such as marital and economic status; and finally socio-cultural factors to include minority groups, age, gender, and culture. Although much of the research concerning these variables is mixed, Powell, Conway and Ross (1990) have shown that analysis of the interrelationships among these factors holds promise.

Learner Support and the Needs of the Content. The need for learner support as defined by the needs of the learner has been well documented. However, the literature has largely neglected the role of support systems based upon the demands of the content to be learned. For instance, using a learning hierarchy similar to that described by Gagne and Briggs (1974), the support required might vary depending upon whether the content objectives are classified as verbal information, intellectual skills, cognitive strategies, motor skills, or attitudes. Weston and Cranton (1986) suggest that the experiential and student-centered strategies such as case study, group methods, laboratory experience, and simulations are more effective for high order and affective learning. Conversely, teacher-centered strategies such as lecture and directed questioning may be more effective for verbal information, and lower order learning. It might be posited, for instance, that the learner support required for a case study method might be different from that required for the traditional lecture method. Holmberg (1985) has provided some supportive evidence noting that "friendly" institutions tend to emphasize problem solving skills and that "unfriendly" institutions tend to emphasize the transmission of facts.

Learner Support and Institutional Context. Keegan (1990) developed a typology of distance teaching organizations based upon the issue of autonomy at the institutional level. The review of the literature indicates that type 1 distance teaching institutions rely primarily upon correspondence. Studies of these institutions tend to emphasize student-tutor interactions and the student use of study centers. However, studies of type 3 and type 5 distance education organizations tend to describe student-teacher interactions, and some add a third component, student-teacher-facilitator interactions. The role of facilitator may range from one of technician to one of partner teaching. Perhaps learner support issues are different based upon the type of distance teaching institution.

One variable which emerged is the extent to which the institution responsible for the learner is also the institution responsible for the provision of support systems. Often students must rely upon the use of study centers or libraries not administered by the institution responsible for their study (Martin 1985; Burge, Snow and Howard 1989; Dekkers, Kelly and Sharma 1988). A related concern is the qualifications and knowledge of individuals who staff local centers. Dillon and Gunawardena (1989) provide evidence that these features are highly variable and in fact may relate to the nature of the

administrative structure of the local support services. Local support services which are not "owned" by the distance teaching institution may be more variable than those that are "owned" by the distance teaching institution.

Factors which would be considered within institutional context would include institutional type, consortial arrangements, policy, and institutional climate to include political and economic factors.

Learner Support and Technology. Garrison (1989) describes the evolution of distance education through three generations of technologies. First generation technologies use primarily correspondence communication, are non-simultaneous communications, and are processed through the mail systems. Both audio and video teleconferencing systems comprise second generation technologies and provide the opportunity for instant simultaneous communications among individuals and groups. Third generation technologies are microprocessor-based and provide the opportunity for both simultaneous and non-simultaneous instant communications between individuals and groups.

Much of the research about learner support relates to distance education systems which utilize first generation technologies. Perhaps learner support issues are different based upon the type of technology used by the distance teaching institution. For institutions which rely upon first generation technologies, the mere availability of interactions may be a more critical factor in determining the quality of learner support, whereas in institutions relying upon second generation technology, the quality of the interactions already available may be more critical to learner support.

In institutions relying upon teleconferencing technologies, libraries and technical support seem to be more critical factors than interaction with the teacher. In contrast in institutions relying upon correspondence, interaction with the tutor appears to more important to the students. In the former, the distance teaching occurs more as a transmission of traditional classes, whereas in the latter courses tend to have evolved as a package.

It is of interest that none of the studies provide any evidence that students feel group work interferes with autonomy, and many of the student-student interactions could be classified as spontaneous or voluntary. However, in a survey of distance education experts, Stubbs and Burnham (1990) found that time/place independence was perceived to be of little concern.

Learner Support and Distance Education Theory

Much of the theoretical work in distance education can be classified as descriptive, either describing the phenomena as they exist or describing the phenomena as they should exist. One issue which should be addressed is how to move the phenomena of distance education from the real to the ideal. The review of the literature suggests that a discrepancy exists between the "ideal" as described in the theory and the "reality" of practice. This gap may be bridged through the development of prescriptive theory, that is, a theoretical approach which can provide a framework for moving from "what is" to "what should be."

Garrison and Baynton (1987) bridge the interaction/autonomy gap using the concept of learner support as a source of learner power and ultimately learner control. It is two-way communication which enables the learner to modify the learning environment to obtain the support required to gain control over the learning process. Thus, through an audio teleconferencing system a learner might ask that the teacher restate a concept in a new way, thereby facilitating understanding; or a learner might seek out a study skills program organized by the institution; or the learner might participate in an extemporaneous study group. The difficulty lies when the needed support systems are unavailable. Perhaps the teacher fails to understand or even to "hear" the learner's question; perhaps the institution provides no study skills group; and perhaps no structure exists which allows learners to participate in study groups. As Holmberg (1985) suggests, unfriendly institutions may be unresponsive, thus the reality of autonomy negates the ideal of control.

Moore, as cited in Keegan (1990), describes the interrelationship between dialogue, structure and autonomy. Greater "transactional" distance will require more learner autonomy and provide less teacher control. When structure is low and dialogue high, the potential for learner control is greater. When structure is high and dialogue low, the potential for more teacher control is greater. Saba (1988) has incorporated systems theory into this theoretical framework to develop a model describing the interrelationship between structure and dialogue through integrated telecommunications media. The level of structure and the level of dialogue are negatively related, so that as one increases the other decreases. Thus the instant two-way communications provided by the telecommunications technologies expedites the interrelationship between dialogue and structure.

The literature offers some evidence that systems which utilize teleconferencing technologies provide greater opportunities for learner control and tend to be higher in dialogue and lower in structure, thus lending credence to Saba's (1988) theory of integrated systems. However, the literature also suggests that, in general, two-way communication tends to be more responsive to institutional needs, i.e., needs of structure rather than to

learner needs, i.e., needs of dialogue. Likewise it appears that in these systems, the amount of dialogue and structure are more a function of the teacher than of the learner.

Interaction and Learner Support

At the crux of the following discussion lies the concept of interaction since two-way communication is one of the two features which characterize distance education, the other being distance. The issue of interaction is significant to our understanding of learning because interaction is a vehicle through which we can observe thinking. Finally, interaction is a defining feature of Moore's (1989b) characterization of distance, and is also a requirement for learner control as explained by Garrison and Baynton (1987), thus an inherent feature of the emerging theoretical work.

The research findings relative to learner support are mixed. Perhaps this variability can be explained. The nature of the support required appears to vary according to the interrelationship among the following factors: the needs of the learner, the requirements of the content, the institutional context, and the technology utilized. In the ideal system, the independent variables are the needs of the learner and the requirements of the content. The predisposing variables are the context within which the distance teaching institution functions and the technology utilized to mediate the communication. The dependent variable is the level and type of interaction, that is the interaction prescription. Instructor styles would be considered within the institutional context and should by necessity vary according to the needs of the independent variables. Figure 2 (see page 24) represents the relationship between the dependent, independent, and predisposing variables which will affect the requirements of a learner support system. The large arrows symbolize the interrelationships among the variables. The small arrows symbolize the impact of the context within which the learning experience occurs.

The unique relationship among these variables which occurs in a given setting will result in a distinctive prescription for arriving at the "ideal" interrelationships of interaction, as described in the following section.

Learner Support and the Interrelationship of Interactions

Figure 3 (see page 25) depicts a model which considers the support necessitated by both the learner and the content based upon an analysis of the level of interaction needed based upon a modified version of Moore's (1989a) three types of interactions: student-institutional interactions (to include interactions with the teacher), student-student

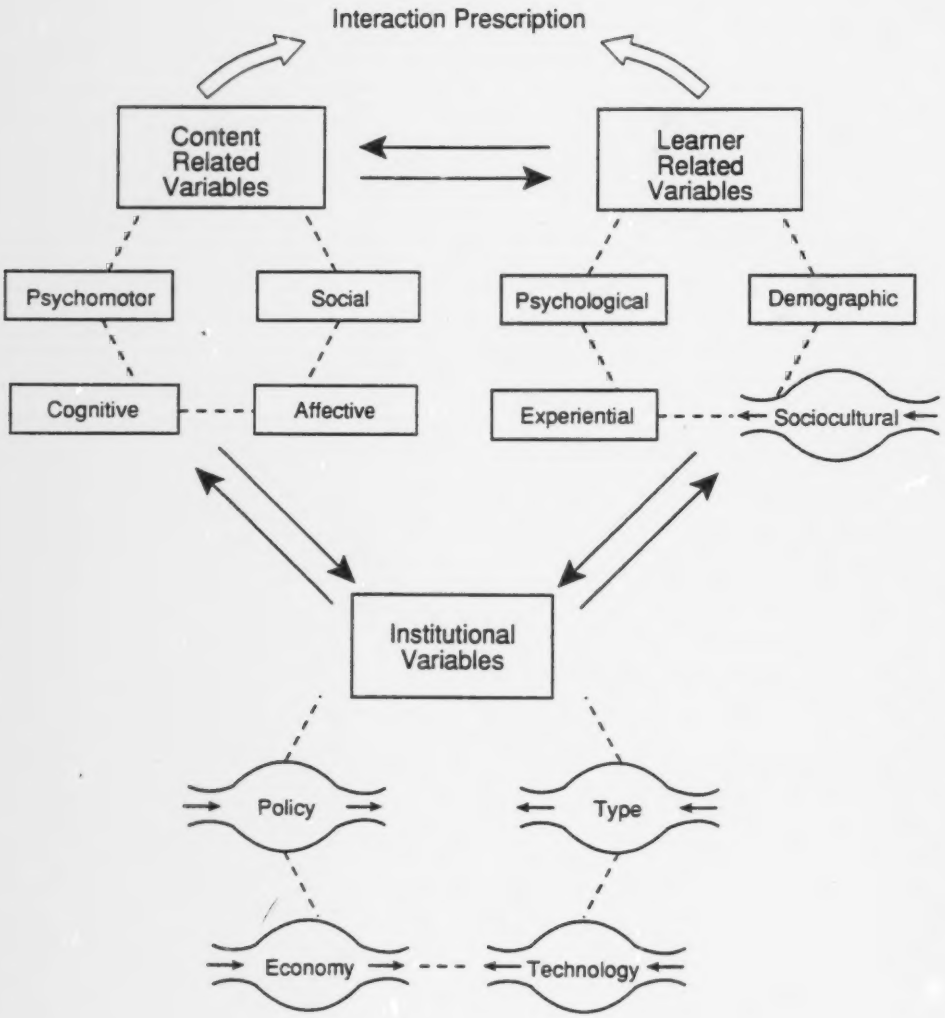

Figure 2. Ideal Interaction.

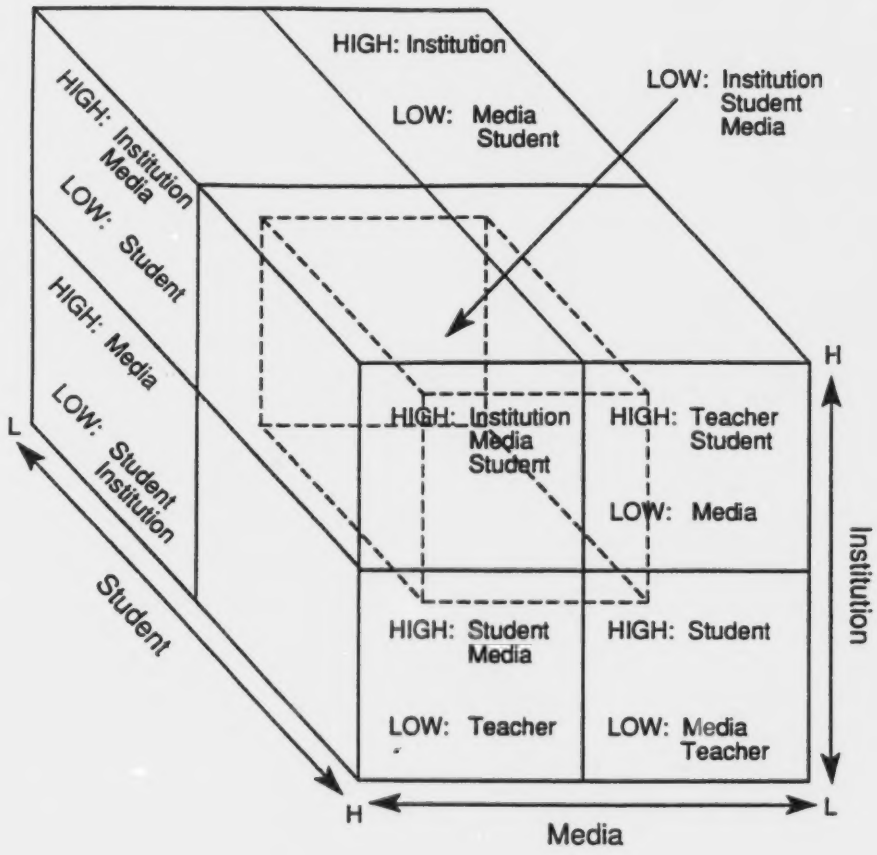

Figure 3. Learner Support and Interrelationship of Interactions.

interactions, and student-media interactions. Student-media interactions include interactions with print, audio and/or video tapes, and computer-based materials.

The "ideal" interaction of "interactions" depends upon the interrelationships between needs of the content being taught, the needs of the learner, and the considerations of the institution.

Content considerations include the level and type of desired learning outcome, based upon cognitive and affective learning hierarchies (Gagne and Briggs 1974; Martin and Briggs 1986). For instance, the nature of interaction required for learning outcomes which are concerned with the learning of verbal information may be indeed different from the nature of interaction required for learning outcomes concerned with changing values, i.e., affective learning. The former may require opportunities for directed questioning, whereas the later will likely require dialogue and debate (Weston and Cranton 1986). Likewise, the nature of interaction required for learning outcomes which are concerned with affective learning will likely be different from analysis and problem solving outcomes, as the latter may profit from the use of group discussion or group project strategies.

Learner considerations include psychological factors, such as motivation and expectancy; demographic factors such as economic and marital status; experiential factors such as prior educational and work-related experience; and socio-cultural considerations. Most research fails to consider the impact of socio-cultural factors upon learning. Learning in an inner city environment may be inherently different than learning in a rural or suburban environment. A Native American who learns on an Indian reservation may have different requirements than a Native American whose education has been integrated into another culture. Much of the research focuses upon the psychological dimension of the learner, such as cognitive style or learner preference. Rarely is the learner studied in terms of the complex system he or she represents.

Institutional considerations include institutional type, policy, economics, and available technologies. The type of technology used for the mediation of communication will affect the type of support required. Technical systems will require more technical support services, than print-based systems. Systems which use synchronous teleconferencing systems may require less tutorial support than systems which use asynchronous systems. Institutions with extension missions, such as the U.S. land grant universities may find distance education more consistent with institutional policies, than institutions with no extension mission. A distance teaching university will likely provide faculty with greater rewards for distance teaching than an institution with a distance teaching department. Policy related factors might include policy issues which encourage or prevent a public library from

providing access to learning materials and guidance, or an institutional reward system which fails to reward faculty for distance teaching.

One might hypothesize the following prescriptions based upon application of the model. Most interactions would occur somewhere on a continuum between a high and low level of interaction For instance, highest on the continuum of student-student interactions would be a situation in which the experience consists entirely of interactions between and among students. In contrast low student-student interaction implies no opportunities for interaction among the students. Most situations will fall somewhere between the two extremes.

Following are some examples of the potential application of the model. For a content with learning objectives that fall toward the higher levels of the learning hierarchy, the required interactions would be high institution (teacher), high student, and high media. The delivery technology would need to use teleconferencing or microprocessor based systems with opportunities for intensive correspondence between student and teacher.

Learning outcomes related to affective learning (i.e., valuing) might require the following interactions: high student, high media, and high to medium institution (teacher). The delivery technology would need to center around a combination of teleconferencing and microprocessor based systems, supplemented by one-way video tape delivery.

For a content which requires learning at the lower levels of the learning hierarchy, the required interactions would be high media, medium to low institution, and low student. Delivery technology would need to center around one-way media such as print and broadcast, supplemented by correspondence or teleconferencing. However, for a student with a low expectancy engaged in a content at the lower levels of the hierarchy, the required interactions would be high media, high student, and high institution (teacher). Delivery technology in this scenario would necessitate some type of teleconferencing support or correspondence for the learner to provide the necessary interactions. If the same student also had financial concerns, the institutional interactions would also need to include financial aid support, which might be accomplished via correspondence or microprocessor based systems.

Interactions which occurred near the low levels for teacher, student, and media would fall toward the realm of entertainment rather than instruction. High student, low content, and low teacher would be considered something like a rap session rather than instruction, a feature which may relate more to social rather than academic integration.

Recommendations for Research

We must continue to work to develop methods for identifying the students who need support and the types of support they need in order to develop a range of support services suitable for the varying needs of the students. To paraphrase Bajtelsmit (1990), perhaps students will eventually learn what combination of support is best and, given a variety of alternatives, the student will "select a balanced and effective approach" (p. 189). Granger (1990) suggests that to be effective, distance educators must understand the context of the learner. Thus, more study should be done on the social, cultural, and economic factors, as well as the psychological factors contributing to success. Likewise, more research should be conducted about the nature of student interactions, especially collaborative and other types of learning which are possible using third generation technologies.

Future research should consider the type of system and nature of technology utilized, thus providing the basis for greater generalizations. Also research should shed light upon the cooperative arrangements among responsible organizations, and study the impact of staff and faculty development upon student outcomes and attitudes. It is also important that research provide more information about both the institutional and learner context, thus supporting meta-analyses. Comparative research should be conducted to compare findings within and among categories of institutions based upon organizational typology and technology utilized.

Both quantitative and qualitative methodologies are pertinent to this line of inquiry. Examination of the complex interrelationships of variables using quantitative methodologies will require some form of causal modeling. In such a design the learner and content variables would be the independent variables, the predisposing variables would be the context of the distance teaching institution and technology utilized to mediate the interaction, and the dependent variables would be the level and type of interactions. Other quantitative methodologies which hold promise include testing the predictive validity of the variety of instruments described above, and replicating studies using these instruments with different populations.

The strength of qualitative methodologies is their focus upon the description and explanation of human behavior in terms of the *context* in which it occurs. For instance, Lewin (de Rivera 1976) developed a methodology in which the statistical test was subordinate to the description of the behavior of individual subjects. Rather than placing a large number of subjects in a small number of conditions, Lewin placed a relatively few subjects in a large number of conditions; focusing not upon the 'condition,' but rather upon what the condition means for the subject. Data were gathered using detailed observations

and interviews with the subjects. With adequate information about the "context," many smaller scale studies conducted across institutional types with a range of populations could provide useful information supporting generalizations and theory building.

Conclusions

The field of distance education is evolving quickly. During the first half of the century, the correspondence study paradigm provided "education for some." The opening of the United Kingdom's British Open University in the early 1970s, and the development of the National Technological University and the telecourse program in the U.S in the early 1980s were watershed developments. The integration of instructional systems design models, coupled with the use of mass media for distribution, enabled the field of distance education to move from the "education for some" paradigm to the "education for all" paradigm.

The study of learner support in distance education is indeed multifaceted, as is the study of any topic which attempts to explain human behavior. Although the ultimate aim of education is to support independent learners, not all learners can function effectively, nor can all contents be taught in a totally independent environment. We can no longer assume that distance education is more appropriate for motivated, autonomous, middle class learners. Distance education in the twenty-first century must mean education anytime, anywhere, for anyone. If the instructional systems design model helped move us from an "education for some" paradigm to an "education for all" paradigm, perhaps it is a learner support model such as the one presented here that will help us realize Pat Cross's (1976) vision of "education for each."

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Changing Perceptions of Learners and Learning at a Distance: A Review of Selected Recent Research

Chère Campbell Gibson

Introduction

Learning and characteristics of learners–the former an outcome and the latter an input in the distance teaching/learning transaction–represent a dyad which has generated considerable interest, albeit uneven, in the field of distance education. Many questions emanate from an attribute/aptitude treatment interaction (ATI) stance, asking the question which treatments, e.g., institutional services, interact with which student attributes or aptitudes, e.g., learning style, to enhance student learning, persistence, and satisfaction? But where has this interest taken us in the past few years? What perceptions have changed? Which have remained constant? What questions have been answered? What questions remain? Let's begin by taking a closer look at the attributes of past, present, and perhaps future interest.

Learner Characteristics

Research in the late 1980s and early 1990s appears to represent a changing perception of the learner. More specifically, three trends seem to be emerging in this research: 1) the learner is increasingly depicted as a dynamic individual; 2) an increased emphasis has been placed on the affective dimension of this dynamic individual; and 3) the environment in which learning takes place has achieved growing prominence.

The Dynamic Learner. First a look at the growing attention to the changeable learner characteristics. As Herrmann (1988) aptly notes in his reflections on past research in distance education,

> a cursory investigation of research into distance education (as distinct from distance teaching or instruction) shows that, for the most part, students are treated as a sample population with group characteristics, i.e., flat, unchanging individuals (p. 5).

But this perception is changing. Powell et al. (1990), for example, refer to three categories of factors which have an impact on student success: predisposing characteristics,

changes in life circumstances, and institutional factors. Predisposing factors are those characteristics brought to the educational process at the time of entry, e.g., educational preparation, socio-economic and demographic status, and motivational and perseverance attributes. The authors note these predisposing characteristics are either fixed or slowly changing throughout a student's studies and as such exert a relatively constant impact on a student's chance of success.

In Herrmann's own work, he refers to the importance of understanding the changing perceptions of students themselves as they progress through their studies and the situational adjustments which are made as they juggle their multiple roles. Changes in levels of commitment, adjustments in perspective related to the value of further education, and feelings of power and control represent dynamic learner characteristics determined in Herrmann's research.

The changes noted by Powell et al. (1990) and Herrmann (1988) are echoed in the early findings of Gibson (1991) as she explores changes in levels of confidence, competence and commitment in a longitudinal study of a small group of distance learners pursuing baccalaureate degrees at a distance.

Thus we see a movement within distance education research from past considerations of the static learner at a distance to a growing appreciation of the distance learner as a dynamic individual.

Affective Dimensions of the Dynamic Learner. Affective variables seem to be replacing (or at least supplementing) the static demographic variables of earlier interest in terms of their ability to predict achievement, persistence and/or satisfaction. Many of these affective variables are noted in the discussion above, namely motivation, level of commitment, feelings of power, control, confidence and competence. Additionally, studies of such affective dimensions as self-esteem (Garrison 1990), intent to complete (Billings 1988), conative capacity and attention control (Atman 1991), and agenda setting (Holt et al. 1990) have indicated, to varying degrees, that these variables are associated with success in distance education.

Considerable interest continues to be focused on learning style preferences. In a recent study, Dille and Mezack (1991) investigated the role of learning styles, as measured by the Kolb Learning Style Inventory (Kolb 1986) and learner's perceived locus of control on retention and academic success in telecourses. Their findings suggest that locus of control is predictive of success with internal locus of control associated with persistence and academic performance. Further those learners with a learning style preference for concrete experience seem less well suited for telecourse study. In a study focusing on learning styles and perceptions of barriers to completion of external baccalaureate degree programs,

Gibson and Graff (In press) determined that grade expectancy and dispositional barriers, e.g., one's perception of one's ability to learn in general and to learn at a distance in particular, were significant predictors of persistence in this post hoc study. As Billings (1991) notes in her review of the literature on learning styles and distance education, the nature of adult learning in distance education settings remains elusive, yet her review of the literature on learning styles and distance education indicates that students' learning preferences do influence learning outcomes.

Other studies, similarly concerned with the affective dimensions of the learner, have raised questions and refuted frequently assumed associations between affective variables and success. For example, Wilkes and Burnham's (1991) study of distance learners' motivation and satisfaction with the distance learning experience, noted:

> The fact that motivational orientations failed to account for significant amounts of participant satisfaction is an encouraging result for those involved in adult education and may challenge some central beliefs. (p. 49)

The authors continue, noting that there may be other internal variables which affect satisfaction; however, they hypothesize that external variables may prove more influential, including the educational environment and especially the teacher.

All in all, as Stone (1988) notes, correlations of such affective variables as noted above as well as other qualitative characteristics

> need to be explored more fully...in light of the weaknesses exhibited by those quantitative indices on which they (researchers) have previously relied. (p. 217)

The Role of the Environment. Not only have we seen increased emphasis on the dynamic nature of the learner and his/her affect, the literature also reveals an increasing awareness of the impact of the learner's environment or circumstances. Not only do life circumstances change, in terms of personal or family health, employment status and relocation, and volunteer commitments (Powell et al. 1990; Gibson 1991), so do their study circumstances, including the courses studied, study environment, and the work environment's relationship to the course of study.

Let's look at some specific examples. Bernard and Amundsen (1989) in a study of attrition in distance education utilizing Tinto's model of Persistence and Withdrawal (1975), investigated the basic premise that antecedents to dropout would differ widely across courses that varied considerably in content, instructional goals, and educational processes. They concluded that Tinto's model was indeed an appropriate framework for research on and explanation of dropout in distance education, with total variance in

completers and noncompleters explained by the model's predictors ranged from 40%–58% in the courses explored. Of particular interest was the variance in explanatory power of the elements of the model across courses with differing characteristics. Bernard and Amundsen concluded,

> adaptions of any model of program attrition to explain course dropout must take into consideration factors related to the nature of the learning task in individual courses. (p. 43)

In further development of the Tinto model, Kember (1990) echoes Bernard and Amundsen (1989) suggesting that intrinsic motivation will be maximized if the students perceive the course they are studying to be directly relevant to their particular vocational position, specific interests, or situation in life.

Providing yet further support for importance of environmental considerations, specifically the work environment, Ross and Powell (1990), in their exploration of gender differences and success in distance education, found women achieving greater success, and noted, by way of explanation, that

> the women came from sectors of the workplace where career advances can be readily achieved through academic upgrading in a distance education environment. (p. 11)

Focusing on the conditions under which students work and study, Kirkup and von Prummer (1990) noted a stronger desire on the part of women for connection with others during their studies. They stress the "importance of creating networks of support amongst students and the opportunity to meet" (p. 30)–two environmental changes recommended as a result of their research. Somewhat related findings emerge from Wilkes and Burnham's 1991 study noted earlier. In this study external environmental variables proved more predictive of learners' satisfaction. Which environmental variable appeared to be most significant relative the participant's satisfaction with the educational experience? Involvement.

Interestingly enough, in a study of faculty teaching via television, Dillon et al. (1991) determined that faculty utilized the same teaching strategies and practices when teaching on television that they used in their traditional on-campus class. The single exception was the small number of faculty who used discussion groups, laboratory methods, and group projects. These faculty discontinued use of these interactive strategies when teaching at a distance. Further support for the importance of interaction and other environmental variables comes from Powell et al. (1990) who suggest that institutional factors, such as

increased group interaction, pacing, and other learning environment changes may de-emphasize the predisposing factors.

Multivariate, multifactorial designs in addition to or supplemented with more qualitative research methodologies seem indicated as we look at our dynamic and complex learner in his/her learning environment. But, lest we forget, our interest in the learner and his/her learning environment is toward the end of facilitating learning.

Learning

Looking through the distance education literature, success appears to be equated with completion and satisfaction. Although the signs are minimal, a changing perception of (and perhaps even definition of) success seems to be evolving, one which increasingly emphasizes learning. While still infrequent, there are emerging references to surface vs. deep processing of information, knowledge and use of cognitive strategies, and the development of self-directed independent learners. Only two research studies related to information processing and cognitive strategies appeared in the limited literature search conducted: Marland's et al. (1990) report on a study which investigated how tertiary level students use and learn from textual materials during actual study sessions and Olgren's (1991) research, in progress, on cognitive strategies of students pursuing a baccalaureate degree in business administration at a distance.

As Marland et al.(1990) note in their abstract, "close ups of students at work provided by analysis of these data were not flattering" (p. 71) and inconsistent in terms of student claims about their studies. The researchers describe the students' rate of progress through the materials at a rate consistent with surface processing of information, noted student avoidance of in-text questions and activities whenever possible, and their limited use of access structures provided in the text. Several factors may account for these findings, the authors suggest, including: student academic background (some students were new to tertiary-level study); personal backgrounds, particularly work and family commitments; approaches to study; and the content/text itself. Considering the dynamic nature of the learner one might ask, how might the passage of time and increased experience influence a student's repertoire of study skills? How might in-text features be changed to encourage deeper levels of processing, utilization of a variety of strategies, etc.? Olgren's completion of data analysis will provide comparisons and probably raise more questions in an area which seems vital to explore but appears to have created limited interest among distance education researchers.

No studies documenting the development of self-directed learners in distance education emerged (at least that I could find) in the last three to four years. Of note was the challenge of Ross Paul (1990) to develop independent learners, the "higher order achievement (and)... ultimately a more important criterion for institutional success" (p. 31).

Dillon (1991) admonishes distance educators and researchers, noting:

> Future research in the design of instruction for distance education need no longer focus upon the media, but should rather attend to the method. Research needs to provide distance educators with increasingly systematic guidelines for selecting instructional strategies; guidelines that are linked to the types of learning required by the demands of the new learning society. (p. 40)

Thus, it appears that there is a changing perception of distance teaching/learning from an emphasis on providing physical access to information or content delivery to psychological access to information. In the latter instance the emphasis is on the learner selectively and critically evaluating the new information in light of his/her own knowledge, understanding, and experience and creating new knowledge and understanding for his/her own purposes.

Questions, More Questions for the Future

A number of questions emerge from the foregoing considerations and what follows is a less than exhaustive list of these questions—questions growing out of changing perceptions of learners and learning. Focusing first on learning, given the dearth of research in the area, one might ask what role institutional interventions might play in expanding a student's repertoire of learning skills/cognitive strategies? How do these strategies change over time, with experience in a course as a dynamic distance learner?

What is the role of setting? Work by Garner (1990) suggests that as the context varies, the nature of the strategies employed may also vary. Her work suggests certain situations are more likely to elicit cognitive strategy monitoring than others. Further, limited knowledge of the task at hand may inhibit application of cognitive strategies (Gibson 1991). What instructional design interventions may enhance the use of appropriate cognitive strategies in these instances? Some strategies are also wedded to the settings in which they were learned, but our learner is seldom in a traditional classroom where many strategies were acquired. What implications does this have to student counselling relative to how to study? How does the learner's perception of their own attributes, e.g., ability

attributes vs. effort attributes, impact strategy use? What factors covary with strategic flexibility?

Garner (1990), in listing questions for future research asks:

> does amount and kind of strategic behavior vary with the factor of goal selection (i.e., are learners more or less strategic when they, not someone else, select a particular goal to be achieved? (p. 526)

This question brings to mind the affective and motivational aspects of thinking. The work of Hidi (1990) suggests that interest is "central in determining how we select and persist in processing certain types of information in preference to others" (p. 549). Her work focuses on both personal interest (personal preference feature) and situation interest (feature of the environment), citing research which supports both types of interest as enhancing cognitive performance. What implications does this research have for instructional design, especially text-based interest, initial course selection, etc.? What about the impact of changing interests over time?

Or changing attitudes over time? Herrmann (1988) notes a change in attitude of learners over time with a significant shift from the earlier pragmatic reasons for studying, e.g., means to an end, often financial or job related, to more intrinsic reasons, i.e., learning for learning's sake. Iran-Nejad (1990), commenting on the connection between conceptions of learning and approaches to learning, suggests that those who learn for later reproduction will take a more surface approach to learning when compared with those who seek a new way of thinking about reality and personal growth, who will engage in a deeper approach to learning. Again, what impact does this have on course design, advising students, etc.

Some Concluding Thoughts

Ours is a new field, the long history of correspondence study notwithstanding. Learning at a distance, with an emphasis on the learner, the context, and the process is receiving increased attention from the growing numbers of researchers in the field in recent years. At this juncture it seems important to continue to encourage those who conduct research in the field to continue the trend toward theory-building from our earlier emphasis on descriptive research. In addition, the movement from a sole consideration of psychological variables and explanations towards a deeper appreciation of the contribution of the socio-cultural context is commendable.

Our greatest challenge continues to be the need to understand the process of learning at a distance. In order to enhance this understanding toward the end of facilitating distance

learning, researchers may wish to consider greater involvement of the distance learners themselves in the design, conduct, and evaluation of research on distance teaching and learning.

There is still much to be learned about learners and learning at a distance. As Evans and Nation (1989) note, critical reflection lies at the heart of learning. Perhaps our greatest contribution as researchers and practitioners of distance teaching and learning may be fostering this critical reflection, this critical thinking, in ourselves and those with whom we work–our colleagues, administrators and, above all, the learners.

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Responding to Change: Designing a Flexible Learning Organization for Distance Education

Andrew Woudstra and Stephen Murgatroyd

Introduction

This paper will examine the need to develop new organizational forms for distance education which will satisfy the needs of a changing environment which focuses on the need for a highly trained, technically skilled, well educated workforce. It postulates that the new organization will need to be efficient, focused, committed to learning and be able to effectively reach beyond space and time. The dedicated distance education institution is ideally suited to this future but needs to be changed and adapted from the forms it has taken outside the United States. We propose a small, flat organization structure with a flexible, multiskilled core, a strong group of strategic partners working on a contractual basis and a supporting resource of part-time flexible labor.

Forces for Change

Competitiveness Paradigm.

Today, government, business, and communities are increasingly focused on competitiveness. Competitiveness studies and definitions have moved beyond investigations of individual businesses and industries to concentrate on the nation state unit (Porter 1990). For a nation to be competitive, it must first of all have a skilled and educated workforce. Among other things, this means a strong initial education system and a system for life-long learning and training. Overall the nation-state must strive to create a total environment that enables its industries, businesses, and public services to compete globally.

Because the economy is being restructured as new paradigms of competition, of organization, of social relations, of work and of education develop, the world in which we live will gradually look much different to us and require different expectations and behavior. Handy (1989) calls it the Age of Unreason and points to a requirement for

'upside down thinking'. For organizations, including distance education organizations, the age of change requires responsive adaptation through strategic management (Murgatroyd and Woudstra 1989).

Many writers have documented the type of change occuring and required in business organizations (Kanter 1983, 1989; Peters 1987; Morgan 1986). Others have documented and written about what happens to organizations, even very successful ones, when they become rigid and fail to continue to adapt and change (Miller 1990; deVries 1987; Meyer and Zucker 1989).

Socioeconomic Pressure

Concentration of Ownership and Power. Drucker (1991) talks about how owners' demands on North American business will increasingly be concentrated in strong institutional stock ownership with the institutions being forced to take a long term view of business value since the market simply cannot facilitate the easy movement of their large holdings in and out of ownership positions in large businesses. This institutionalization of ownership and concentration of power will also affect government and the education system, which will come under increasing pressure to increase efficiency and effectiveness, to rethink its practices and structures much the same way as business is currently being radically restructured.

Demographics. The knowledge worker, due to emerging demographics in Europe, North America, and Japan and to supply factors, is going to be an increasingly scarce resource for which there is a great deal of competition. It is increasingly difficult for university schools of management to recruit candidates of the desired skills profile. Add the complexities of the legal requirements found in many affirmative action programs and it becomes almost impossible for medium and small schools to attract strong candidates who can contribute positively to change.

Supply is affected by an attitude that technical and scientific skills are not valuable. Society rewards and glorifies athletes, wizards, and vocal radical social spokespersons. It underpays and does not recognize its engineers, manufacturing experts, and scientists. North American youth are not motivated to study in difficult, unrewarded subjects. North American schools are not keeping up in depth and rigor of mathematics and science education.

Infrastructure Problems. Many of the large and medium sized North American cities and states are rapidly deteriorating without the funds or will to fix them. Population growth in many areas may make it almost impossible to move around to work or to school. New projects and project proposals are few. Airports have become woefully inadequate for the

growing traffic demand. Even in the area of telecommunications, the infrastructure necessary to keep up may not be constructed quickly enough to keep pace with the leading nations.

Primary and secondary schools and universities face capital shortages so they cannot build new facilities or obtain equipment such as computers and labs for scientific and engineering experimentation by qualified students.

Political/Economic Realities

Government deficits have become a major constraining factor in North America as governments at all levels are facing expenditure growth not matched by revenue growth. A major roadblock, particularly in the United States, is the public refusal to accept more taxes and their resistance to cuts in social programs on the one hand with demands for more social programs on the other. Until this paradox is resolved, there is bound to be continuing deficit funding.

In the area of education, many initiatives are being tried without major new funding, and improvements are being made. The education system has become a highly politicized issue with President Bush responding by announcing his Education 2000 program which, among other things, foresees the establishment of a series of new and innovative schools as pilot projects. Technology is perceived as a big part of these new schools. The question, however, remains, will this initiative mean new funding or by sleight of hand will it draw funds from current programs? If it is new funding, where will the revenue come from?

Upscaling Human Resources Through Changes in Education

The education system must produce more and better highly skilled, knowledgeable, and technically able workers. The perception and perhaps reality is that North American Schools are not producing what is needed. The rapidly changing and increasingly complex environment requires continuous learning while the North American education system has focused almost exclusively on the first career preparation education for the high school graduate. The mix in many schools to include older adults is becoming very visible but the institutions are not adapting.

Organizations must have able, knowledgeable, highly-educated, innovative, and skilled human resources to deal with an increasingly knowledge-based environment. These knowledge workers are very expensive and are required to do more within the organization. Since they cost so much and the new technologies allow them to do and control so much more, the organization will operate with fewer and fewer of them and will want to bind them.

As education requirements shift to continuous learning throughout the adult life, the demands on the educational system change. Career preparation is more likely to include formal work terms in the programs of study but individuals will also look to a different mix of work and education, perhaps preferring to move back and forth from work to education as they progress through life.

Management education, as recent articles in *The Economist, Fortune* and almost every other business oriented journal show, is feeling the greatest effect of the competitiveness pressure simply because it is so directly related to the center of change. Management schools throughout the world are responding with changes in accreditation standards (Fuchberg 1991), in program and course focus toward globalization and internationalization (*The Economist* 1991), in forging strategic alliances with corporations (Lea 1991) and in searching for market niches (Lea 1991; *The Economist* 1991).

Distance education, because of its position in many traditional institutions in Canada and the United States and because it caters to adult students, is most directly in the path of change. In many cases, public distance education and management education programs face increasing competition directly from the training and education arms of large corporations and organizations and from the myriad firms springing up with products for training and for longer formal education programs. Distance education is in a position of opportunity because of its experimentation with and growing knowledge of information technologies in education . It can take an ever growing profile in the lifelong education of the future.

The Information and Communication Revolution

Telecommunications and the computer have the potential to significantly change education and, in particular, distance education. Bates (1991) notes that:

> the same conditions that lead to successful use of the newer interactive technologies in business and commerce will also apply to educational institutions wishing to use these technologies. The 'information society' is based on and requires fast, flexible and devolved decision-making and management, and thus radically different organizational structures and methods of working from those found not only in conventional education systems but also in the large, autonomous distance teaching universities. (pp.11-12)

Walton (1989) and Zuboff (1986) have explored the impact of information systems on organizations. Walton deals with the conditions necessary for successful implementation of major information technology/information systems arguing that this has three components, all of which must be present for information technology to reach its potential. The three

factors are 1) strong direction through the alignment of business, organizational and technological strategies; 2) wide organizational commitment to and ownership of the IT system; and 3) strong competence demonstrated through user mastery by the employees. Successful implementation radically changes the way the organization operates, leverages its effectiveness and opens up new horizons for the organization. Zuboff explores the relation of Information Technology and power, arguing, as does Walton, that it can both automate and informate; both enslave and free the worker.

Walton (1989) uses Mrs. Fields Inc. to illustrate the relation between IT and organization. The company operates in the retailing sector by baking cookies that are fresh and warm. There is a strong interrelationship between the 'people side' of the business and the analytic and strategic functions. Walton notes two key competitive factors essential to attracting and retaining cookie store customers: 1) an upbeat, pleasant and responsive store culture and 2) a high quality product offering.

Among other initiatives to maintain high motivation among store managers and employees at Mrs. Fields has been the use of two types of advanced IT systems. PhoneMail, supplemented by FormMail, answers the phone and takes, stores, replays and transfers messages, putting Debbi Fields' voice into every store. Debbi Fields has a standing promise to respond to managers' messages within forty-eight hours. Daily Planner helps store managers plan and re-plan each day's activities. For instance, it will analyze store historical data to predict hour by hour, product by product what is needed to meet the day's sales projections. It provides helpful suggestions when patterns depart from normal. Daily Planner does not replace the manager's judgement, it augments her/his decision-making with up-to-date information. The information is not used to control managers but goes to the manager to informate. Other systems play a similar role in areas such as recruitment and repair and maintenance of equipment.

Bates (1991) believes that the main advance in distance education will come from the technologies that increase interaction for the learner, the lack of which has always hindered the industrial model of distance teaching. Technologies which extend the classroom by relaying lectures are an extension of the old familiar educational paradigm, which while they may be cost effective in extending the audience do not provide new options for the learner. As the relation of the learner changes to the teacher or teaching institution through the use of computer mediated communication, so also does the relation of the academic and other education professionals to the educational institution. Finally the institutional structure itself is thoroughly changed.

No matter how we project the use of communication and information technologies, whether stressing interactivity (Bates 1991) or one-way directed broadcasting (Pelton

1991), these technologies are seen as increasing the reach and influence of the best thinkers. Drucker, Deming and others appear simultaneously at sites around the world. If you miss the broadcast you can order a videotape for future viewing. Intelligent use of computer mediated interactive communication and instruction will informate the learner. The learner will gain a greater measure of control over his learning. The educator will assume a different position in space and time in relation to the learner and to the home educational organization.

The Learning Organization

To deal with rapid change and complexity the organization must become a 'learning organization'. A recent surge of translated materials from Japan is flooding the shelves of managers and others interested in creating and sustaining the learning organization using the techniques such as KAIZEN (continuous improvement), TQC (Total Quality Control), JIT (Just in Time) and QFD (Quality Function Deployment) (Imai 1986; Ohno 1982, 1986; Shingo 1987). These continuous improvement tools are all tools of the learning organization. Some primary and secondary school systems are now beginning to use these methods, models and frames as a basis for rethinking their own work (Murgatroyd 1989,1991,1992).

The learning organization, says Senge (1990) needs to take a systemic view of its business and environment. Woudstra and Powell (1989) suggest the value chain/system structure as a valuable management tool to gain a systemic perspective of a distance education organization. Using strategic management (Murgatroyd and Woudstra 1989) and techniques such as cross functional teams (Murgatroyd 1990) for systematic 'outside-in' thinking (Murgatroyd 1990) and continuous learning will allow the distance education organization to create new structures appropriate to changing realities.

Handy (1989), Toffler (1990), Peters (1987), Schonberger (1990), Kanter (1986, 1989) and Drucker(1990), have written about the organizational changes which are affecting manufacturing and service industries alike. Using case studies, they show how effectively their example organizations have re-thought the structure and process of organization to enhance performance.

Senge (1990) lists the disciplines which must be present in an effective learning organization: systems thinking, personal mastery, mental models, building shared vision, and team learning. The shared vision is evident in the business definition which must clearly focus the organization on viable and appropriate goals. Senge considers system

thinking as the foundation for the other disciplines as it provides the view of the whole picture.

Heskett (1986), writing about managing a service business, notes that a service organization must include four key basic components in its Strategic Service Vision. These components are: 1) clearly differentiated services for its target market segments, 2) a comprehensive and focused operating strategy, 3) a well thought out and distinctive service delivery system which leverages value over cost, and 4) a service concept which strategically positions the organization in the market place. Each of these components is vital to the success of a distance education unit. The development of the components is a rigorous process best implemented and enhanced in the environment of a learning organization. Indeed, one might say that extremely successful implementation of the components is proof that the disciplines of a learning organization are present.

In an increasingly competitive market and one in which the customers (students, employers, suppliers, and providers of funding) are demanding change to effective and efficient education which will continue life-long, a different type of distance education organization/institution (and educational institution in general for that matter) must emerge which can effectively and flexibly provide the educational product demanded. The new organization must do more with less. It must organize itself around its key human resources using the new information technologies to maximize their effectiveness and integrate itself into a network of companies and individuals which can best provide it with the skills and services it requires on an as needed basis. The new organization avoids the accumulation of overhead at all costs.

Organizational Possibilities

There has not been a great deal of work on organizational theory and distance education (Mark 1990). Mark notes that various descriptions have been used to describe college and university organizations including political, organized anarchy, and bureaucratic. He goes on to review the categorizations developed by distance educators which focus primarily on environmental dependency or whether a distance education unit is a dedicated institution (Open University or Athabasca University) or is part of a larger institution as is the primary case in the United States. Duning (1990) notes the lack of management literature and research in distance education particularly including institutional leadership. Duning goes on to make some powerful observations on leadership.

To many, the university of today seems a chaotic uncoordinated place; impossible to 'manage'. However, the traditional structure, with modification primarily by adding faculties or schools for new disciplines, has served well over the years until now. As with

any organization, the university reacts slowly and reluctantly to change and many can be classed as permanently under-performing organizations (Meyer and Zucker 1989). Indeed, the concern with performance relative to investments has led the British Government (through the Committee of Vice Chancellors and Principals and the University Grants Commission and their successors) to systematically collect and publish performance indicators which are now also used to guide funding decisions (Committee of Vice Chancellors and Principals/UGC 1988). Current demands for change are becoming loud and action urgent. Those schools which do not change will, in the longer run, wither and die, strangled by a lack of funding and support. This will come about as other options become available to students through new independent schools and corporate schools. The new university will have to change its organization, cut loose from the clutter of faculties as fiefdoms and become a renewed learning organization and not just an organization disseminating knowledge.

How might the learning organization manifest itself in the university sector? Handy's (1989) Triple I organization stresses Intelligence, Information, and Ideas and is conceptually similar to the learning organization. Using Senge's thinking, building the Triple I/learning organization requires a number of ingredients:

1. System thinking to gain an overview of the full picture.

2. Shared vision or realistic, acceptable pictures of the future supported by genuine, shared goals, values and purpose or mission. Strong leadership is required here to help create, implement and facilitate the continued growth of the shared vision.

3. Upside down thinking to create new mental models. Senge discusses a number of tools for identifying and creating mental models. Shell's scenario building techniques for strategic planning and management is a prime example (Schwartz 1991; Wack 1985).

4. Personal mastery through life long or continuous learning. Personal mastery gives purpose; purpose gives rise to vision. Personal mastery rises from a devotion to truth. Truth is used here in the sense of not deceiving yourself; of understanding and using current reality as a basis to work from in creating vision.

5. Team learning through cross functional, high performance teams. The modern learning organization needs continuous improvement throughout and can only get

this through the sharing and dissemination of learning through teams so the whole organization can learn.

The learning organization will need both intelligent people and intelligent machines and these will work together to leverage improvement. Drucker uses the analogy of the orchestra to indicate how the parts should work harmoniously together guided only by the conductor who has the complete score, the shared vision created by systemic thinking.

A Systematic Approach

Is there a more systematic way of approaching the future? Scenario planning (Wack 1985; Swartz 1991) involves more than projecting possible futures. It is about changing the perceptions about the future and how we will have to act. We can postulate a number of steps which may provide some aid in moving a set of growingly bureaucratic distance education organizations to flexible, learning organizations dedicated to outstanding performance in the field of distance education.

1. *Realization:* Looking at a combination of economic factors, market circumstance, and the cost drivers associated with organizational management, it will become clear that "if we do what we always do we'll go broke." Grants to post-secondary education are in decline relative to both costs, inflation, and demand. Only changing the cost-drivers will meet social responsibility. By developing scenarios the organization/group can change the way it looks at possible futures. It will no longer believe things will stay the same; no longer be able to deny the need for new mental models.

2. *Reform:* Having realized the need for change, having developed scenarios for possible futures, and having chosen a vision of the changed organization, it is then essential to begin a major process of reform. This process should be powerful and all embracing. It should be undertaken without hesitation and with a great deal of interpersonal care. Nonetheless, the transformation will involve structural changes, position changes, rethinking products and services and changing the relationship between the provider and the customer in such a way as to make the latter the central focus for the work of the organization. There will be several barriers to this process: old style management, unions, attitudes, money, and habit being among the most common. These must be overcome if the new kind of organization is to

emerge which is leaner, more sensitive to customers, and effective in achieving goals efficiently.

3. *Empower:* Within the framework of the revised organization, teams need to be empowered to achieve goals and objectives that are product focused, learning oriented, and organizationally improving. In doing so, the teams need to be themselves regarded as learning organizations. A commitment to training and education to develop new competencies such as knowledge of the business, analytical skills, and interpersonal skills is crucial.

4. *Informate:* The information needs of the learning groups/teams need to be met with an intelligent, timely flow of data to the people who need it to help make decisions. Like the shop managers at Mrs. Fields, empowered local decision making groups working directly with customers/clients need up-to-the-minute data to help them do the right thing the right way at the right time. The empowered team is like a coxless rowing team flailing away at the water if it is not fully informed and also equipped with the tools to use the information acquired.

5. *Evaluate:* Using all the available technologies of evaluation, quality function deployment, and measurement, the organization should benchmark all of its important tasks with a view to regarding benchmarks as the starting point for improvement. It must establish clear goals, objectives and performance criteria for all the organizational members. It must establish service guarantees for its customers.

These five steps represent a radical agenda for rethinking organizational design. What is clear is that distance educators will not fulfill their promise if they simply adopt the organizational designs of other educational institutions. It is also clear that the design of traditional educational institutions is also being challenged and will change.

A Design for a Renewed and Flexible Distance Educational University/Organization

It is apparent that society will be less able to afford to have its human resources spend long periods exclusively at educational institutions particularly once they have already completed their original credential after high school.

Public funding for universities is being curtailed severely by the changing fiscal realities in North America and private funding will not make up the difference. Private funding will also be much more discriminating.

The biggest constraint will be the shortage of top knowledge workers to fill the core critical functions in organizations. A shortage of knowledge workers will create greater competition for the best. This is already very apparent in management education as doctoral candidates are ardently pursued with high salaries and other perks by many universities and colleges. Many in fields like finance, accounting, and computers choose to go into the private sector. Consequently, any university or school can afford fewer knowledge workers be they computer specialists, top academics, distance education specialists, or any other in-demand group. They must augment the fewer core workers they can afford with contractual and flexible workers (contracts can be made with private sector people to perform short term or part time tasks such as writing or teaching) as has long been common in schools of business, law and medicine.

Viewing the university education field in general and the distance education part of it in particular from a broad systemic point of view, we see a need for restructured, focused lean structures and sub-groupings. The organization must be flexible, highly adaptive, and quick to learn. It must systematically use leading edge tools to manage and plan to design, create, and revise products quickly and often. It will be time conscious and have a very short product life cycle. One of the advantages of the traditional model of education is the flexibility of the academic—his/her ability to change what is taught on a day to day basis as required. Some of this ideal flexibility has been lost with the changing focus of many university organizations to a more exclusive focus on 'publish or perish' limiting the ability of the academic to keep up in areas not directly related to her/his narrow specialty.

Handy uses a description he calls the Shamrock organization which he envisions with three leaves: 1) the core, 2) the contractual fringe, and 3) the flexible labor force. Each leaf of the shamrock must be managed differently yet be part of the whole.

The shamrock for a distance university (and likely all universities) would parallel the prototype described above. The core would consist of a small highly energized productive group of academics, professionals, and support staff. Each is broadly skilled in distance and open educational practice as well as being an expert in a specialization. The core sets direction, develops the organizational vision, and provides the leadership in developing a cohesive and innovative curriculum. Research in both discipline and distance education is a primary function of the core. Core professionals work at home or on the road with contracted individuals and companies, but stay in close communication with the headquarters by various technologies. The core meets regularly on-site and by computer-

mediated means. The core works to eliminate system delays for timely response to demand requirements and to accumulate the knowledge about the student/client that is essential to appropriate decisions. Everyone in the core must be a manager while at the same time being more than a manager since no one can afford to be only a manager.

The key to making this work and fostering the group vision and resultant goals will be the Dean, who cannot be allowed to become bogged down in daily detail. The administration of the courses and programs must be a smoothly running area requiring little intervention. The Dean will then be able to concentrate on work as leader, facilitator, and liaison for the faculty. Another key will be formation of teams that go beyond academic disciplines and that constantly work together and with other teams. A spirit of innovation must drive the core to new concepts and experiments in education.

In the Faculty of Administrative Studies at Athabasca University (AU), the core consists of twenty-five individuals. This group manages three degree and five certificate programs as well as the courses which in various combinations compose the programs. There are about five thousand course registrations representing over two thousand students. In addition the Faculty is involved in a number of additional projects. Five support persons are present at the office full-time. We are trying to get the university to redefine the role of this group and augment it so that we can improve many administrative procedures that are unnecessarily held over from prior times and that require the involvement of the academic in the paper stream. We also will be able to build our knowledge of our student/client base so that we can improve service and react flexibly to changes in their requirements.

The core also includes two editors who spend much of their time in the office but are becoming much more mobile as they begin to manage contracts to free-lance editors. The academics and one instructional design specialist spend little time in Athabasca and could spend less but for some university rules about attendance. Most daily business is done by telephone and e-mail. A monthly faculty meeting brings everyone together. Other special meetings and retreats are used as necessary.

In addition to having responsibilities in teaching and research, the academic at Athabasca is at the same time a manager with responsibility for several courses for which tutors and markers are contracted, and he/she may be managing contracts let for writing of course materials. She/he is also required by the nature of the task to be familiar enough with distance education technology and learning theory to work well with it.

The Open Learning Agency of British Columbia, which includes the Open University of British Columbia, uses only professionals, support, and learning specialists in its core, contracting for all academic work.

The Banff School of Management in Banff, Alberta has a very small core of professionals/program managers who are accountable for the development, marketing, and delivery of a number of professional development programs. It contracts academics, experts, and trainers from around the world to teach its short courses.

Regardless of the composition of the core, the key concept is consistent. A relatively small, compact, and cohesive group carries out the central functions, contracting and utilizing part-time workers to carry out the work of the institution. The winners in the long run will be those who best integrate demand requirements, expertise, and communication and information networks to effectively perform the goals and objectives chosen.

In this new distance education organization the contractual fringe includes academics hired for particular tasks in preparation of materials and for teaching; instructional designers are contracted for specific projects. Other individual companies are hired for activities in accounting, computing, printing, media tasks, consulting in program design, and so on. The components of the contractual fringe are integrated into and networked to the core through information systems and computer mediated communications networks. In the service and support areas at AU we have not made progress in changing the urge to build an on-site capability for handling everything peak or off-season.

The contractual fringe is made up of individuals and organizations paid for results not time. The organizations are smaller than the main organization but also have their own shamrocks. The central organization can exercise control only by specifying results, not by overseeing the methods.

The flexible labor force consists of individuals doing part-time tutoring, counselling, advising, secretarial work, lab supervision and so on. Peak periods in registration, exam marking, and other related activities will require the use of a flexible part-time labor group to avoid adding permanent staff for these activities. Again, the flexible labor force is networked to the core, and where necessary to the contractual fringe, through the computer-mediated communications network and strategic information systems.

The flexible labor force includes many people (often significant numbers of women) who do not want full-time jobs but access to money and people, supplementing and complementing their other work. Often they hold two or more part-time jobs and should more properly be classed as self-employed with a portfolio of jobs. This group must not be treated as unimportant hired help. It is a valuable part of the organization in which the organization should invest, providing training including training leading to qualifications. They should be eligible for some benefits.

A possible fourth leaf involves getting the customer or client to do the work. Examples are self-serve gas stations, automatic tellers or, in the education area, self-registration. Our

flexible distance education university of the future will not be wedded to any development or delivery methodology but seek to innovate and go with what works for a particular customer group or a particular piece of subject matter.

Conclusion

Three messages should be clear from this paper. First, change is inevitable but learning from change is optional. Organizations can chose to resist changes in structure or process or they can embrace them. Those who embrace change in a strategically focused way are likely to emerge as Shamrock organizations able to respond flexibly and intelligently to the environmental changes they will experience. Those who resist, especially public funded dedicated distance education institutions, will find others moving into their territory and occupying their market. "Doing what we've always done" is not likely in the future to produce the outcomes expected.

Second, the key to the strategic management of organizations and change is the development of people within the organization through the creation of a learning community. The ideas in this paper suggest a need to rethink the relationship between individuals and their work and between process and performance. Knowledge workers will be a scarce commodity from the end of the 1990s through to the early part of the next century (Chinloy 1983)—new organizational frames need to be created which both challenge these workers and also empower them to find their own ways of responding to these challenges. Such changes to organizational design require us to rethink the relationship of work to recognition and reward strategies.

Third, high performing organizations offering distance education may emerge from a variety of sources: educational institutions have no monopoly over the enterprise of learning. To be responsive, organizations will need a focused service strategy, a simple structure and challenging goals. A failure to grow in this way and to provide leadership by doing so will in turn lead public administrators and private investors to reduce their funding and switch their allegiances to more productive and less expensive options. This new thinking is already re-shaping service sector organizations in several sectors. It is time for distance educators to embrace these challenges.

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Research on Selected Aspects of Learner Support in Distance Education Programming: A Review

Stephen J. Wright

The notion of learner support in distance education is defined in this literature review as the requisite student services essential to insure the successful delivery of learning experiences at a distance. Included in this definition are pre-enrollment activities such as: recruitment, admissions, orientation, assessment of student expectations, and pre-academic courses. The topic of tutorial services is addressed with specific emphasis on tutorial centers, telephone tutoring, pacing systems, and computer conferencing. Counseling and advising services are reviewed with specific focus on personal counseling, academic advising, and career counseling.

This paper reviews articles, papers, dissertations and studies based on research focusing on aspects of learner support for distance education. Descriptive reports and articles are cited along with studies based on systematic methodological inquiry. Items discussed were drawn from the literature cataloged in ERIC and Dissertation Abstracts. Special attention was given to published research in *The American Journal of Distance Education, Distance Education,* and *Teaching at a Distance.* An initial list of approximately 125 articles was compiled and analyzed for relevance to the topic of learner support. Emphasis was placed on articles and reports appearing since 1980.

An attempt has been made to break down the broad field of learner support into a number of subunits to facilitate easier analysis of the topic. Obviously there is considerable overlap from one category to the next making clear and unambiguous organization of the topic impossible.

Term definition also presents some challenges. Research studies sometimes use the terms counseling and advising interchangeably implying that such activities are identical. Although tutor is generally recognized to imply an academic activity, it too is often used in a broader, less defined way. For the purposes of this review, the term advising will be used to refer to the process of helping students obtain program or course-related information, information on financial aid, and a variety of other services. The advisor is seen as a person seeking to assist students in finding answers to specific problems dealing

with course enrollment, study skills, and time management to name a few. References to counseling usually imply a broader meaning. Counselors are more person centered. They focus on helping the student identify goals and frequently aid in the diagnosis of learning difficulties. Unquestionably, the line between advising and counseling both in terms of definition and practice is frequently crossed making precise definitions difficult if not impossible.

Pre-Enrollment Aspects of Learner Support

One evidence that distance education is beginning to reach maturity as a methodology and a system is the development of more sophisticated and comprehensive student services programs. Finally, selected distance education institutions are demonstrating that they understand the importance of counseling and student advocacy. Arguably, one of the most important aspects of this emerging concern for providing better student counseling and advising services is in the pre-enrollment stage.

Kirkwood (1987) reports on efforts at open universities in Britain and Australia to have students examine their expectations of distance education. The study finds that students need to consider the suitability of distance education for their needs and circumstances as well as the intellectual demands of studying at the tertiary level. A student centered approach is presented which utilizes self-evaluation materials to help individuals assess their aspirations.

Few distance education institutions surpass Athabasca University in the area of student services. Brindley (1989) found that Athabasca has instituted a wide ranging program of pre-admission services including information dissemination, orientation, and self-assessment questionnaires designed to assist students enrolling in distance education programs analyze their reasons for returning to study and their commitment to it. The author argues that distance education institutions have a special responsibility to insure that prospective students are not set up for failure by the promise of accessibility and flexibility.

Gough (1979) reported the initial success of the distance teaching counseling program for mature students at Deakin University, Australia. The emphasis of the counseling program is on admission and enrollment activities which take place between June and December in the year prior to the student beginning the course. A counseling package provides information on potential problems, a self-assessment exercise, and advice on study techniques.

Moore (1989a) posits the view that high student dropout rates characteristic of the earlier years of correspondence education can be reduced through the use of counseling and

carefully developed recruitment programs. A report by Friedman (1981) noted the early recognition of the importance of thorough pre-enrollment systems at the Open University, United Kingdom, The National Open University of Venezuela, Everyman's University in Israel, and the Open University of Pakistan. Small (1986) reported a study recommending prior screening of all adult secondary distance education students prior to enrollment. A study technique program to teach learning strategies was found useful.

An interesting perspective on student dropout rates is offered by Bartels and Willen (1985). In comparing two very different distance education systems, the FernUniversität in West Germany and the Swedish system, the authors conclude that comparative dropout rates have relatively little meaning unless a variety of factors are taken into consideration. High among those factors are admission policy, entrance qualifications, and enrollment policies. Enoch (1987) reported the importance of pre-academic courses for students participating in Everyman's University, a distance education institution with an open admission policy.

Increasingly the message of a variety of studies is that what happens at the earliest stage of recruitment, admission, and enrollment is of the utmost importance in determining the success or failure of students enrolled in distance education programs.

Tutorial Services

The focus of this portion of the review is on that aspect of learner support which has to do with the manner in which tutorial services are provided or delivered to distance education students. In most instances, the role of the tutor in a distance education system is that of academic specialist although tutors frequently provide support to students outside the realm of their content speciality. Tutors interact with students in a number of ways including written contact characteristic of traditional correspondence study; phone contact; video, audio and computer conferencing; radio communication; and face-to-face contact at tutorial outreach centers.

Rekkedal (1985) reported the results of a research project at a Norwegian distance education institution, which examined the effectiveness of using personal tutors/counselors in distance education programs to reduce student attrition. In the study, one person was asked to integrate the role of several different tutors in different subjects with that of the student advisor. One group of students worked only with this single tutor whereas the control group continued to consult with separate tutors and advisors. After eight months, those students in the experimental group (those working with a single tutor having multiple functions and academic specialities) had a higher course completion rate.

Keegan (1981, 1984) found that high among the reasons for the success of the Open University of the United Kingdom (U.K.) was the student support services provided by the Regional Tutorial Services Unit which focused on reducing the student dropout rate by providing student counseling. Millard (1985) surveyed students' attitudes and found that the provision of local student-teacher contact time can be an important factor in enhancing student success at the British Open University. In a 1984 study, Gagan observed that there was little direct evidence to support the view that the support services provided to Britain's Open University students reduced attrition and enhanced achievement and satisfaction. On the same topic, King et al.(1982) reported favorably on the effectiveness of the British Open University's 260 local study centers located throughout the U.K. Students are assigned to specialist tutors who provide academic content assistance while self-help or study groups deliver an additional source of support for Open University students. Additional models are analyzed including the mentor system found in the U.S. where 25-30 students are assisted in developing individual study plans. In University Without Walls institutions in the U.S., a teacher-advisor helps students develop a learning contract that serves as a basis for evaluating each student's performance.

A 1985 study reports that at the Everyman's University in Israel tutorial services are pivotal to the success of this open admissions program (Enoch 1985). Every student is assigned to a tutorial group and students may also confer with course coordinators by phone or letter.

A number of studies continue to report success with the use of the telephone as the primary means for providing tutorial services. A 1983 study conducted by Mitchell College in Bathurst, New South Wales, Australia found the use of telephone tutorials for small group instruction of isolated students to be effective in support of distance teaching activities. Scales (1984) described a study which continued earlier research on the relationship between course completion and telephone tutoring in distance education. Results demonstrate that a statistically positive although modest relationship does exist. Correlation is greater in adult basic education and career technical vocational programs than in university programs. Hacklin (1990) noted the importance of phone contact as an element in a multiform teaching approach which included the use of distance education methodologies in Lapland, Finland. Paulet (1988) reports the successful use of the telephone at the Open Learning Institute where tutors (performing more as advisors than as academic content specialists) call students at least three times during a course. Telephone and teleconferencing are used by the OLI tutors to reduce the sense of isolation felt by the students.

Lauzon and Moore (1989) report on the benefits of computer conferencing as an educational technology which personalizes and individualizes distance instruction. This technology permits tutorial activity, interaction among and between students and tutor/instructors, and provides a pacing element that facilitates assignment and course completion.

Another aspect of tutorial services having a direct impact upon student success (reduction of dropout rates) in the completion of distance education courses is pacing. Mitra (1983) describes a personalized system for student paced administration of correspondence programs which responds to the individual needs of the students in matters regarding registration, sending out materials, and receiving materials from tutors. Ming (1988) reports a 94.6% course completion rate among students enrolled in traditional correspondence courses using the Southern Alberta Institute of Technology Rural Library Training Project's pro-active telephone-tutored delivery mode. The model provides for pacing (pre-scheduled phone calls) while still allowing flexibility for the learner. The focus of the model is to relieve the isolation factor associated with correspondence.

Shale (1987) surveyed the research literature on pacing and found that measuring the effectiveness of pacing systems is extremely difficult due to the variation of desired ends. The question of why pacing is instituted is more important than any reported outcome. A 1980 study (Spencer) reported on a project conducted at Athabasca where six different courses were delivered in two different modes–home study and paced package. Students in the home study course received tutorial support via the telephone and progress through the course was at the discretion of each individual learner.

Students in the paced package course received tutorial support via the classroom instructor and progress through the course was instructor determined. Results showed that the completion rates for the paced package course were much higher and therefore more efficient. Scholars should heed Shale's arguments that the success of pacing systems must not be judged only by their perceived effectiveness or efficiency in terms of factors such as course completion, but on the basis of how effectively they met initial administrative and philosophical goals.

Counseling and Advising Services

Paulet (1988) summarizes the current state of counseling and advising support services at selected distance education institutions by referring to exciting opportunities and depressing realities. As this portion of the review will demonstrate, a few distance education institutions have made noteworthy progress in this area while many only talk

about what they plan to do. Further complicating the issue is the imprecise use of the terms advising and counseling. What is known is that students need a support service that can personalize and humanize the distance teaching system.

Moore (1983) compiled a collection of articles for an international conference held in Cambridge, England, which had as its focus counseling at the Open University. Topics ranged from a general theory of counseling to the role of the tutor-counselor and the Open University's post-foundation counseling program.

Athabasca, the Open Learning Institute, The University of Quebec Téléuniversité, the University of Western Ontario, and Brandon University are institutions singled out by Paulet (1988) as having innovative and effective student support (advising and counseling) programs. Athabasca employs 160 part-time tutors to assist students with course content. These tutors also provide general academic advising services. At the Open Learning Institute, 120 tutors serve more as academic advisors performing information-giving, liaison; and promotion and administrative roles. The University of Quebec Téléuniversité uses the *animateur* (facilitator) to organize workshops for small groups of students to serve a specified region (Caron 1982). At the University of Western Ontario, community representatives or peer-counselors provide information and support to off-campus and distance education students. Brandon University's Northern Teacher Education Program, utilizing regional coordinators, is seen as a model of community-based teacher training.

Woolfe (1987) finds that counseling at a distance is a growing area for a large number of persons working in the field of continuing education for adults. Such counselors will be called upon to provide counseling in a variety of areas including work, unemployment, and retirement.

The concept of flexible learning as employed at the Open University and Open Tech in Great Britain is explored in a 1989 (Open University) paper in which an understanding of the need for counseling and tutorial support is said to have emerged. Terms such as "supported self study" and "personal development plans" have tended to replace terms such as "open learning."

A significant number of studies single out counseling as an essential element for reducing dropout and improving course and program completion rates in distance education programs. De Freitas (1986) cites counseling and course redesign as recommended ways to reduce attrition in the introductory course of the National Open University of Venezuela. Beitz (1987) reports the results of a telephone survey which examined the off-campus courses of sixty-four library schools; the placement of advising services was reported as a key factor aiding distance education students. Lewis (1980) cites the effectiveness of a local counseling system in helping adult correspondence students outside the Open University

successfully complete their courses. The importance of guidance and counseling in the operation of the Northern Territory External Study Center in Australia is the focus of a study by Livingston (1987). Carr (1983) found a gap between institutional recommendations and the use and perception of academic advising and tutorial services by upper division students at the Open University in Scotland.

Counseling through technology is being utilized by a number of programs and institutions. Paulet (1988) reports that despite the growing interest in providing student support services through the use of technology, these services are still delivered primarily through print, telephone, and in-person contacts. Feasley (1983) reports the popularity of audiocassette tapes to supplement and enrich the print-learning package but notes that only a few institutions use audiocassettes as a vehicle for communication between the tutor and the student. The telephone is still the primary medium for providing counseling to distance education students. Audio, video, and computer conferencing have their place but are not widely used outside of a number of Canadian universities (Paulet 1987)

Naidu (1988) finds a growth in the incorporation of computer conferencing in distance education activity at six institutions but warns that issues such as the expansion of computer conferencing to larger groups and the assurance that low-socioeconomic status groups have access be carefully considered.

Kuffner (1984) describes computer assisted applications in the area of counseling for distance education students at the FernUniversität in Hagen, Germany.

Moore (1986,1987) perceptively notes the need to combine the traditional virtues of the printed word as embodied in the Study Guide and correspondence assignment with provision for support and counseling services for the distance learner.

Billings (1988), in her model of correspondence course completion, touches upon two aspects of learner support that are often overlooked by researchers. These are employer support, both financial and moral, and family support. Usually described as environmental factors or variables, these two support bases are presented by Billings in a humanistic way that underscores their importance in either promoting or discouraging success in correspondence course study.

Regrettably, there has been little progress made by distance education institutions in providing career counseling services to their students. The one major study was conducted by Fage (1987) who surveyed the amount and type of provision of vocational guidance in distance and adult higher education outside the U.K. The study found that generally, career services workshops were inaccessible to distance students. Strategies employed by distance education institutions to overcome these barriers of access included self-directed career

planning materials and arrangements for distance students to telephone on-campus advisors, toll free.

Miscellaneous Conference and Research Reports

In the past four years there have been no fewer than five international distance education conferences or symposia which have focused their attention heavily in the direction of learner support systems and services. Published reports and compilations of papers from recent conferences provide insight into the current level of interest in these topics. Tait (1987) edited a collection of sixteen conference papers presented at the "International Workshop on Counseling in Distance Education Conference" held in Cambridge, England, September 15-17, 1987. The collected papers cover a range of topics including many already discussed in this review. Adey et al. (1987) compiled seventeen papers from the May 1987, "Distance Education in Southern Africa: Preparing for the 21st Century Conference." The overwhelming emphasis is on aspects of student support and student services programs. A rare paper on the topic of Career Guidance for Distance Students was delivered by W.A. van Schoor (Adey et al. 1987). The 1989 "Helping Learners at a Distance Annual Conference on Teaching at a Distance" held in Madison, Wisconsin produced thirty-five papers including six which had a specific learner support focus. Tait (1989) edited twenty-five papers from the September, 1989 International Council for Distance Education and British Open University sponsored conference entitled, "Interaction and Independence: Student Support in Distance Education and Open Learning." Papers address the entire range of student support services.

Holmberg (1989) edited a collection of works on the topic of Mediated Communication as a Component of Distance Education. The Holmberg collection warrants inclusion in this review because a number of contributors present findings on tutoring issues. Cookson (1989) presents a review of research literature on learners and learning in distance education. Several recent doctoral dissertations based on research conducted at a traditional, university-based independent study program are mentioned. Feasley (1982, 1983, 1986) offers analyses of distance education programs which include significant coverage of counseling and learner support programs. The 1986 study focuses on practices at seventy-three independent study-by-correspondence programs located at higher education institutions in the United States. Markowitz (1983) provides a summary of data studying many of the same institutions surveyed by Feasley.

Recommendations

There needs to be study and research conducted on the impact of computer management systems (enrollment, registration, record maintenance, etc.) on the delivery of student services. Other aspects of computer use in the administration of distance education programs might bring to light valuable relationships effecting the provision of student support services.

There needs to be more attention paid to the importance of career and vocational counseling for distance education students.

Studies which deal with counseling and advising services must do a better job of defining how they intend to use these terms. Too often, advising and counseling are used interchangeably.

There is a pressing need for more research on student support systems at dual-delivery institutions. Research based on the study of university-affiliated independent study programs in the U.S. is under represented in the professional literature.

The cost effectiveness of various educational technologies used to support student services programs needs to be emphasized more.

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